Railway Age

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EDITORIAL

Railway Age

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The Labor Board conducted a hearing last week on a controversy between the big four train service brotherhoods and the Order of Railroad Telegraphers with the Buffalo, Rochester & Pittsburgh, which while apparently of little importance, will have far reaching effect on train operation if decided in favor of the brotherhoods. A strike has been threatened unless a rule is incorporated in the working conditions to the effect that the trainmen will not have to receive train orders by telephone direct from the dispatcher (without the intervention of a station operator). This will mean that one of the important advantages of the telephone for the operation of trains will be nullified and train dispatching in many places will again be dependent on the Morse code. Also, additional employees will be required at certain blind sidings and other locations to transmit instructions or the orders of the dispatcher to the train crews. In handling orders and getting instructions at such locations the train crew is not taking over work which belongs to operators any more than the operators are taking over work of the train crews when they line up switches for them in order to keep trains moving. This hearing raises a question in which the public is vitally interested for this rule, if placed in force, will make train operation more expensive as it will require additional employees for work which has been handled satisfactorily in the past, trains will be unable to get over the road as rapidly and poorer service will result, the cost of all of which will have to be passed on to the public. The present is no time to add to operating costs in any branch of the railroad service.

Train Crews Handling Train Orders

The unsatisfactory performance of the coiled springs on car trucks, especially on 50-ton cars, has given trouble for some time. As a result, the Committee on Car Trucks of the Mechanical Division of the American Railway Association has recommended an alternate design of springs made of chrome molybdenum steel instead of high carbon steel. The committee contemplates the substitution of these springs for the present standard if the anticipated advantages of the new material are borne out in practice. The individual railroads have been slow in adopting alloy steel, one of the principal objections raised being the difficulty of properly treating the material. The committee's action in advocating the introduction of alloy steel in general interchange service is therefore significant. It seems to indicate that the committee does not consider the handling of this material as a serious obstacle. Furthermore, the simple heat treatment recommended in the specification shows that it would not be difficult for the roads to treat these springs in their own shops. It is interesting to see engineers again turn to alloy steel as the solution of a difficult problem. A few years ago several roads tried various alloys in an attempt to overcome the unsatisfactory counterbalancing condition caused by heavy reciprocating and revolving parts of locomotives. The adaptation of the material to this use was found difficult. Some of the roads could not secure the steel promptly during the war and the experiment was given up. The problem is still waiting for a solution. It will be solved when the roads attack it with energy and courage and with a determination not to be turned aside by the discouragements that are inevitable in the development of new methods.

Alloy Steel for Cars and Locomotives

The economic plight in which this country would find itself if each state became a separate nation can be only vaguely imagined. If, however, we could picture such a situation and should add to it an intense nationalistic feeling on the part of each of the new nations, we should have with us just such a situation as prevails in Central Europe today. The old Austro-Hungarian empire has been dismembered into several independent states, all intensely jealous of each other. If a traveler wants to go from one country to another, he must have a passport and submit to a customs examination. Similarly, freight has to be examined by the customs authorities and because of the impediments to free passage, some important railway lines have been abandoned altogether for through traffic. If such conditions should prevail in this country it would naturally follow that little business would be done, because the greater part of our commerce is interstate. America would quit producing and the whole world would suffer. Such an inexcusable barrier to the free movement of freight and passengers, together with a railway system sorely in need of physical rehabilitation, is the key to the chaotic conditions in Central Europe. Central Europe, moreover, is the chief cause of economic troubles in Europe generally and, indeed, in the entire world. Colonel W. B. Causey, American Technical Adviser to Austria, in an article appearing elsewhere in this issue, gives a first-hand analysis of transportation problems in Central Europe. His observations will be of interest to those who realize the importance to this country of world-wide economic revival as well as to those who are seeking conclusive proof of the value to a nation of an efficient system of railways.

Transportation and Central Europe

"In output and grade of work employees receive from labor almost exactly what they are willing to take." This remark recently was made by a railroad officer in discussing the importance of intelligent supervision in all branches of railway work. In the old days of railroading the ability to drive men often was one of the chief requisites to be desired in men employed in a supervisory capacity. The day of the driver, however, is past and under present conditions the successful supervisor is the one who finds means, other than by word of mouth, of influencing his men towards increased activities. This can only be done when the men are thoroughly convinced that the boss is doing all in his power to make it easy for them to get the desired results. Comparatively inexpensive opportunities for the higher officers to co-operate, such as providing improved working conditions or a more convenient rearrangement of materials or tools and so on, often present themselves. The desire of labor to be relieved of useless drudgery suggests the important relation labor saving devices bear to the entire question of super-

Mechanical Devices and Supervision

vision, whether the problem under consideration concerns the mechanical department, the engineering department or the handling of package goods at freight stations or transfers. Under the present state of development of material handling devices, machines for carrying on almost all classes of laborious railway work are available and their possibilities in securing higher efficiency from the labor are worthy of careful consideration.

Equipment Repairs in Contract Shops

WHAT constitutes the actual cost of operations performed in railroad shops is a question which has seldom been given the attention it deserves. In most cases, after obtaining the direct labor and material charges, a percentage is added to cover shop expense and the result is considered to be the complete cost of the operation. In the series of articles by J. W. Roberts, comparing the cost of repairing 50 box cars in a railroad shop with the cost to the railroad of 50 cars of the same series repaired in a contract shop, concluded in this issue, a painstaking effort has been made to include every item of operating expense which logically should be charged against the work done in the railroad shop. While a lack of adequate information in the railroad accounts has compelled the selection of bases of apportionment of some of the items of overhead expense and affixed charges which may be open to question, there can be no doubt of the logic of including some part of each of these items.

When questions as to such items arise the familiar answer is that these expenses would be incurred whether the particular operation in question were to be performed or not. No doubt in many specific instances this argument is correct, but if used often enough such operations will accumulate in sufficient volume so that in the aggregate there can be no question but that they are responsible for a portion of every item of expense which a strict analysis such as that made by the author of these articles would charge against them This applies particularly to the various manufacturing operations carried on more or less extensively in all railroad shops.

But there is a broader phase of this matter in its bearing on the primary operations of equipment maintenance. The volume of maintenance is subject to more or less fluctuation, the railroads never having succeeded in accumulating sufficient reserves to discontinue a hand-to-mouth policy largely dependent on the volume of revenues. The periods during which shop facilities are crowded beyond the limit of efficient operation are followed in cycles by periods during which considerable portions of these facilities are idle. The past year has presented a most marked example of this condition. A year ago not only were railway shops working to capacity, but a large volume of equipment repairs was being cared for in contract shops. Since the decline in traffic last fall all maintenance work has been subjected to a most drastic curtailment and railroad shops have been operating far below normal capacity.

If such cycles are to continue, and there is little reason to doubt that they will, it becomes a serious question whether, as a matter of general policy, the railroads can afford to provide the capital and the organization necessary effectively to care for these congested periods, whether they should provide for average conditions or whether they should provide only for a volume of maintenance which may reasonably be expected to continue during periods of depression. The correct formulation of policy in this matter must rest on a complete and accurate determination of the elements of railway shop costs. This, of course, applies only to heavy repairs, since light and running repairs are probably too closely related to the actual operation of the railroad to permit them to be separated readily from the control of its own organization.

Admitting the correctness in detail of each item of operating expense charged against the railroad shop repairs by Mr. Roberts it would be unsafe to draw general conclusions on the basis of the results obtained in this specific case, and the author has made no such attempt. It is worthy of note, however, that in this case the assignment of equipment repairs to the contract shops did not result in idleness of the facilities provided by the railroad to do the same work. Had such idleness resulted, thus making a portion of the railroad's fixed charges a legitimate item in the determination of the complete cost of the contract work, the margin of saving favorable to the contract shop would be narrowed. It would then become a serious question whether the investment of capital in contract shops should be encouraged to an extent which could only be justified on the assumption that the railroads were materially to curtail operations in their existing shop facilities.

When the question becomes one of expanding existing shop facilities, however, the possibilities are much more favorable for the contract shop. It is true that a change from the present unsatisfactory and inefficient labor conditions with which the railroads are confronted might materially decrease the attractiveness of contract repairs. But one of the most effective ways to control this condition is to prevent the establishment of a railway labor monopoly in the maintenance of equipment field. This consideration alone is sufficient to justify careful consideration of whether contract shops should not be used more in future than they have been in the past.

Net Return of the Railways Smallest in Twenty Years

THE PRESENT FREIGHT and passenger rates of the railways had been in effect twelve months at the end of August, 1921. A perfect hurricane of agitation for their reduction is raging. Many people seem to believe that on these rates the railways have earned a large net return, while others believe that they are guaranteed 6 per cent by the government.

How astoundingly different from these widespread popular impressions are the cruel facts. The facts are that the total net operating income earned by the railways in the first twelve months the present rates were in effect was smaller than they had earned in any fiscal year for twenty years, except when, as a result of government control, their returns were guaranteed. We have to go back to 1902 to find a full fiscal year when they were operating without guarantees; when their operating income was as little as $555,666,000. Their gross earnings in that year were only $1,726,400,000, so that they were able to keep for themselves almost one-third of what they earned. In the twelve months ended with August, 1921, the total net operating income of the Class I roads was only $530,000,000. This figure is not strictly comparable with that already given for 1902, but it is nearly enough comparable to show that the net operating income in the first twelve months the present rates were in effect was, as already stated, the least in any year for twenty years, except when the net returns were guaranteed. The gross earnings in these twelve months were over $6,000,000,000. In other words, while twenty years ago almost one-third of the gross earnings of the railways were net returns which they could keep, since the present rates have been in effect only one-twelfth of what the public has paid them has been net return which they could keep.

But this is not the worst of the story. Twenty years ago the investment in their properties was only a little more than half what it is now, and the net return earned then amounted

to over 5 per cent on their property investment. On the valuation of the Class I roads made by the Interstate Commerce Commission, which is somewhat less than their property investment as shown by their books, the net operating income of the Class I roads in the twelve months ending with August yielded a return of only 2.9 per cent. In its annual report for 1916 the Commission gave figures showing the percentages of return earned in every year beginning with 1892. The smallest percentage of return then shown by its figures was for 1894, the year after the great panic of 1893, and was 3.2 per cent. Therefore the percentage of return earned in the first twelve months the present rates were in effect was the smallest ever shown in any year for which statistics are available, except, as stated, when the net returns were guaranteed.

As a result of the recent relatively small reduction of wages, and of the most drastic economies ever made by the managements of the railways, the net operating income recently has been increasing. It was $70,000,000 in July, which was at the annual rate of about 4.50 per cent on the valuation. It was over $90,000,000 in August, which was at the annual rate of about 5 per cent on the valuation. It was assumed, however, when the present rates were fixed that on them the railways would earn an annual net return of 6 per cent, which, for the Class I roads, would have been $1,101,998,000 in a year. The net return actually earned in twelve months under the present rates was $571,911,000 less than the amount required to yield a 6 per cent return.

The railways are just convalescing from the most serious financial illness from which they have ever suffered. It would require not only months, but even years, of substantial net earnings to enable them to recover from the effects of what they have recently gone through. On the whole, the present rates are too high. Clearly, however, no steps should be taken toward reducing them which are not accompanied by measures to reduce present railway labor and other costs. The railways have no right to ask for any better treatment than other industries, but as one of the basic industries of the country they should be treated as well as other industries, not only in fairness to themselves, but also in the interest of the public welfare.

Railroad Consolidations

FOR THIRTY YEARS the people and government of the United States sought to prevent any consolidation or agreement by railways which would interfere with unrestricted competition in construction, service or rate-making. A remarkable change in sentiment occurred about the time government operation was adopted which resulted in the consolidation provisions of the Transportation Act. This act directed the Interstate Commerce Commission to formulate a plan for the consolidation of all the railways into a limited number of systems. The Commission delegated to Professor William Z. Ripley of Harvard University the task of formulating the first plan, and his report to the Commission which recently was made public shows that he did his work with remarkable thoroughness, intelligence and skill. He recommended the creation of 21 systems. The Commission, in making its tentative plan, adopted that of Professor Ripley in the main, but so changed the combinations as to reduce the number of proposed systems to 19.

All discussions of the plans made by Professor Ripley and the Interstate Commerce Commission should be predicated on recognition of the fact that they worked under certain definite directions given by the Transportation Act. The act requires that "competition shall be preserved as fully as possible, and wherever practicable the existing routes and channels of trade and commerce shall be maintained." "The several systems," says the law, "shall be so arranged that the cost of transportation as between competitive systems and as related to the value of the properties through which the service is rendered shall be the same as far as practicable so that these systems can employ uniform rates in the movement of competitive traffic, and under efficient management earn substantially the same rate of return upon the value of their respective railway properties."

Probably the most important difference between Professor Ripley's plan and that tentatively adopted by the Commission is that under the former the principal distinctively New England railways would be consolidated into a single system, while under the Commission's plan they might be consolidated into a single system or different ones of them be united with railways in Trunk Line territory. One of the Commission's suggestions is that the Boston & Maine, Maine Central and Bangor & Aroostook might go with the New York Central, while the New York, New Haven & Hartford might go with the Baltimore & Ohio. Professor Ripley suggested that the Florida East Coast Railway should be left independent, while the Commission favors putting it into the Atlantic Coast Line-Louisville & Nashville system.

Either plan apparently would carry out the provisions of the act as well as any that could be made. Before, however, any scheme of consolidation can finally be adopted by the Commission public hearings must be held, and these hearings are pretty sure to disclose a wide diversity of opinion among public men, business men, farmers and railway officers regarding the desirability of such wholesale consolidations as are contemplated and regarding each of the particular consolidations that have been suggested. It should be clearly understood that so long as the railways are privately owned, whether all or any of the consolidations proposed shall be made will depend on the voluntary decision and action of the railways themselves. The government could buy the railways, and having bought them put them together in any way it pleased, but it has no constitutional power to compel two or more privately-owned railways to unite if they do not want to. While it cannot compel any two railways to consolidate, it can, of course, prohibit any combination it may regard as contrary to the public interest.

There is one provision of the Transportation Act that is likely to prove a far more serious obstacle to effecting its purposes than its authors anticipated. This is the provision which, in substance, requires any two or more railways which may desire to consolidate but whose outstanding securities exceed their valuations to reduce their capitalizations so that they will not exceed their valuations. It has been found in the past comparatively easy for railways to consolidate by buying one another's stock, or by having a holding company buy their stock, because this did not necessitate retiring securities actually outstanding. On the other hand, it always has been found practically impossible to retire large amounts of securities except through receivership.

There can be no doubt that many consolidations, including many or most of those proposed by Professor Ripley and the Commission, would be beneficial to the railways and to the public. Many consolidations made in the past would still be in existence and many more would have been effected if the government under the anti-trust law had not broken up or prevented them. The consolidations now proposed would preserve a large amount of competition and enable it to be carried on in most parts of the country on much more equal terms; and they would thus simplify the problems of rate regulation arising from the existence in every territory of some so-called "strong" lines and some so-called "weak" lines.

It is doubtless pardonable to be somewhat skeptical as to the extent to which the consolidation program actually proposed will be carried out. It should, however, receive open-minded, fair and thorough consideration and discussion. There is no question that the prolonged efforts of the government to prevent reasonable consolidations or even agreements

did more harm than good. The policy enunciated by the Transportation Act is incomparably more sane and sound than that enunciated by and followed under the Sherman anti-trust law. The *Railway Age* believes and always has believed, that legislation should simply authorize the railways to effect voluntarily such consolidations or make such agreements as the Interstate Commerce Commission might hold would not be prejudicial to the public interest. The Transportation Act goes farther than this, but possibly when an actual trial of them is made its provisions may be found more workable than some of them now appear to be.

Are American Locomotives Harder on Bridges?

OCCASIONALLY technical problems that primarily concern the engineer become of vital importance to the business man. This is the case with the questions raised by Dr. P. H. Chen in a paper before the Association of Chinese and American Engineers at Peking, China. The seeming inconsistency between American and European bridge designing practice, to which he draws attention, would seem, at first thought, to be of interest only to the bridge designer, but, as pointed out by Dr. J. A. L. Waddell in a letter to the editor, the inquiry implies an indictment of the American locomotive. Dr. Chen shows that American bridge designers use lower unit stresses, make greater provision for the effect of impact and also brace their bridges against lateral motion or vibration to a much fuller extent than do the designers of European bridges. The inference is that the American locomotives impose a much greater burden on bridges (for the same weight) than do European engines. American bridge designers are thoroughly conversant with the merits of this controversy, but Dr. Chen's paper, with the comments of an American bridge engineer now in China which appears elsewhere in this issue, presents the subject in a new light.

American railroad bridges carry much heavier loads than do those of Europe and in consequence, our bridges appear heavier even to the layman, but Dr. Chen states specifically that the inconsistency to which he refers arises in a comparison of structures intended to carry the same loads. This difference may be explained in part by a conservatism on the part of American bridge engineers born of their experience with earlier structures designed without sufficient regard for future increases in loading and which, in consequence, became obsolete long before they had suffered any appreciable depreciation. Therefore, American bridges now designed for E50 or E60 loading are expected to be safe for loads at least 25 per cent heavier.

Experience with obsolescent structures is also largely responsible for the heavy details referred to by Dr. Chen. Every engineer who has ever investigated any number of old bridges knows that weak details rather than inadequate main sections have been primarily responsible for the inadequacy of the old structures. Moreover, the vibration that commonly attends the passing of the train across an overloaded bridge has had no little influence in creating a demand for heavier sway and lateral bracing. The commercial factor must also be considered. American railroad bridges are contracted for on a pound price basis on general drawings prepared by the purchaser and are fabricated according to detail plans made by the bridge company, an arrangement which obviously tends toward heavy rather than light detailing.

The most important point made by Dr. Chen concerns the allowance for impact, but as brought out in the discussion of his paper, there is no opportunity for an accurate comparison owing to the fact that there is no extended equivalent in Europe of the elaborate impact tests made upon American railway bridges carrying American rolling stock. One exception to this is a series of tests carried out on English bridges to which reference was made recently in these columns. These tests, while not sufficiently comprehensive to be conclusive, give every indication that the impact effects of English locomotives are fully as high as those encountered in American practice and English bridge engineers are now considering the adoption of an impact factor fully as large as that now employed in this country.

There is no denying that the dynamic augment has a marked effect and that there may be pronounced differences in the extent to which this has been ameliorated in different designs of locomotives. American engineers are keenly alive to this and are endeavoring to decrease the effect of the overbalance to the greatest possible extent. It should be clear, however, to anyone who is familiar with bridge designing practice that the difference in the riding qualities of European and American locomotives is not to be measured by the difference between American and European bridge designing practice.

Speed and Fuel Consumption

IN CONSIDERING the freight locomotive as a machine for the production of ton-miles its internal characteristics are of less interest than the character relationship between the fuel placed in the firebox and the ton-miles produced by the work done at the drawbar. Much of the data concerning locomotive performance developed by engineering tests do not convey a clear impression of these over-all characteristics, since the purpose of such tests is largely to determine correct proportions and relationships within the locomotive itself. Hence, such data as that developed by the fuel conservation committee of the Southern Pacific, referred to on the floor of the recent meeting of the Traveling Engineers' Association, are of special interest and value.

The test was made with a 2-10-2 type oil-burning locomotive with a 1,000-ton train. The fuel consumption for 1,000 gross ton-miles was measured at speeds varying by increments of five miles an hour from five miles an hour to 50 miles an hour, other conditions remaining constant. The unit fuel consumption varied from .3 gallons at the lower speed to 28 gallons at the higher speed, and throughout the range the rate of fuel consumption varied remarkably closely as the square of the speed. Such an increase was to be expected through the higher ranges of speed but it is especially worthy of note that in this test the same law held for the lower speeds.

This rate of increase in unit fuel consumption is the result of several factors, such as the increase in train resistance with the increase in speed and the internal characteristics of the locomotive itself, both thermal and mechanical. While the law of variation apparently established in these tests may not hold strictly for all locomotives or for trains of all weights, the results illustrate in a striking manner that fuel consumption is likely to increase much more rapidly than the speed is increased. Since with present average freight train speeds the cost of fuel under average conditions is approximately equal to the wages of engine and train crews, the prospect of economy from increasing the running speeds of freight trains does not look promising.

There is a real opportunity, however, for fuel economy as well as for decreasing the unit cost of crew wages, by the elimination of delays at terminals and on the road. Data obtained in these same tests indicate that for every hour of delay there is a fuel stand-by consumption to keep the locomotive hot and maintain brake pipe pressure on the train great enough to produce 10,000 gross ton-miles at 20 miles an hour under the conditions obtaining in the previously mentioned speed tests. It must be remembered that the same relationship would not hold where the fuel is coal, but even though the stand-by losses in the case of coal might be less the fact remains that whatever their extent they are complete losses so far as the production of ton-miles is concerned.

Letters to the Editor

[*"The* RAILWAY AGE *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about* 250 *words—are particularly appreciated."*]

Eliminating the "31" Train Order

DALLAS, TEX.

TO THE EDITOR:

I have read with much interest in the *Railway Age* of September 10 the letter to the editor on signatures to train orders with reference to extending the use of the 19 train order; also your editorial. I have been advocating the abolishment of the 31 train order for a good many years, for I believe it has passed into antiquity.

The Missouri, Kansas & Texas is now making a study of the subject and we hope within the near future to formulate a plan whereby we can, with safety, eliminate entirely the use of the 31 train order. I see no reason why train operation cannot be safely conducted through the use of the middle order and the clearance card, and I feel positive, insofar as our road is concerned, that we shall have something tangible and effective to put forward in the near future.

W. M. WHITENTON,
Assistant Chief Operating Officer.

A Good Stepping Stone

YOUNGSTOWN, OHIO.

TO THE EDITOR:

I have read with interest the letter from "One of Them," entitled "The Official Goats," which alludes to the position of secretary to a railroad official, and which appeared in your issue of September 24.

After almost five years' experience as a secretary, and during a period which has been trying for all railroad officials, I must say that my experience has been both pleasant and profitable. I may have been blessed with exceptionally pleasant bosses, but I have come in contact with a great many railroad officials and their secretaries during that period and have found that the majority are congenial and considerate.

Men, to be really big and to successfully operate their properties, must command the confidence and respect of the great numbers of employees who come under their jurisdiction and in this advanced age it cannot be done by "rawhiding." In this majority, whose respect and confidence an official must command, is included his secretary, in whom he must confide, and who is closer to him than any other employee, not excluding his chief clerk.

To my mind there is no better avenue of progress in the transportation department of any railroad than through a division and general office, and through this avenue a secretary has a decided advantage because of the officials with whom he comes in contact and to whom he becomes known. This does not imply that a man must have pull, but it must be admitted that to be known is an advantage.

It is generally considered that office men have a very limited opportunity for advancement in railroad business, but that is a fault of the office men in that the majority of them prefer to remain in a swivel chair instead of eventually getting out on the road and taking the hard knocks which are part of the road experience and which help to make them hard-skinned.

Read the biography of almost any railroad official who has come up through the ranks without office experience and it will be found that most of them were just a little above the men with whom they were associated with the result that they stood out. It is equally necessary for an office man to push himself ahead and stand out to secure recognition.

We all sympathize with "One of Them" for being the "goat," but the fact that he was a secretary for nine years indicates that perhaps he has not taken advantage of his opportunity, and it is only natural that he should be sore at officials in general.

WILLIAM WHITE.

Are American Locomotives "Rough Riders"?

PEKING, China.

TO THE EDITOR:

The Journal of the Association of Chinese and American Engineers for May, 1921, contains a paper comparing American and European bridge standards* and a report of the discussion which followed. The matter at issue is an important one for the United States, because a claim is being made here by Chinese engineers to the effect that the impact from American locomotives is far greater than that from European ones. If this notion is not driven out of their heads, they will continue to buy Belgian and French locomotives. They have been buying both European and American ones of late years, and I should hate to see the business get away from the United States.

The question is one for our locomotive manufacturers and engineers to solve. I cannot deny the claim of a large difference in impact from the two different types, because I have never experimented with European locomotives, but I state that I am of opinion that the difference—if any—is small.

I have lately had occasion to reply to a claim made in writing by an Austrian engineer to the Railway department concerning the greater expense of American bridges as compared with European ones on account of this matter of impact. They seem to doubt the correctness of our impact experiments.

J. A. L. WADDELL,
Consulting Engineer.

The Railroads and the College Man

CHICAGO, ILL.

TO THE EDITOR:

As a college bred man and a railroad employee, I have read with much interest the current discussion in your columns with reference to the employment of college men by the transportation and operating departments of our railroads. The problem of employment is today a complicated one, and requires more serious consideration and more mature study than ever before. The herculean effort which is being put forth by the railroad managements to develop an organization which will effect the highest degree of economy in the manufacture of transportation, and which will render the equivalent service to the public, must be supported by the very best human intelligence to be had.

I do not believe that it is a question as to whether the railroads want college men. Rather it is whether the college man wants to work for the railroads, and whether the railroads need the college man. The average college man does not want to work for the railroads, for two reasons. First, because employment in the ranks of railroad workers is not presented attractively or thoroughly to the college student and graduate. Second, the remuneration for the railroad beginner is not sufficient to attract him, especially in the face of his lack of knowledge of the handsome rewards ahead for the man who works hard and diligently.

The engineering, mechanical, electrical and valuation de-

*Abstracted elsewhere in this issue under the head "Why Are American Bridges Heavier Than European?"

partments of our railroads require college graduates and want them, and offer reasonably good wages for the initiate. It is a question whether the college or university can provide a course on transportation and operation which will be complete enough to develop a man to such an extent as to warrant the railroads employing him for service which will command a substantial remuneration and place him alongside of the man of years of practical experience in transportation and operation. If they can, so much the better. But from my personal experience the actual daily association with the many problems practical is necessary to effect the required grounding. However, merely to instruct the college student in the fundamentals would be an invaluable aid, and serve to direct him towards the railroad field.

To influence the railroads to offer financial inducements to the college man is an up-hill grind, especially in the face of the present mandatory methods of establishing the daily wage set by the Labor Board. This cannot be overcome at present, and we must leave that issue to time and education.

Does a college man want to work for a railroad? Suppose he does. Is he willing to put in the hardest kind of mental study and physical application to the duties demanded of him? Is he willing to plod along day after day, apparently unnoticed, disregarding the advancement of men he may believe to be less worthy than he, ever keeping his eyes on the goal ahead? Is he determined to hang on? If he is all this and has natural ability he will be rewarded.

I know of no field that offers a wider scope or a more fascinating study than the railroad field, and I see no reason why any young man who leans towards railroading should not follow the path. We cannot all be rich in material effects, but we all have it in us to earn a moderate success and attain a position of trust and confidence.

Do the railroads need college bred men? I believe they do, and furthermore I believe the railroads want them. By virtue of his four years' application to concentrated study, the college man has sharpened his intellect, and is more capable of getting down to bed rock, of seeing a situation quicker. His ability to study prepares him to assimilate facts easier, and apply what he learns. The potential ability to analyze and grasp a situation, the ability to think accurately, and the ability to stick to facts and to follow instructions, all these attributes are ingrained in the college bred man, and are necessary factors in producing a constructive, well-rounded and responsible executive. It is intelligence any business house or railroad wants, and I believe the college man offers a quality of intelligence which the railroads can well afford to take advantage of.

Some constructive means must be established by the railroad and the college to induce the college man to look favorably on the railroad field. When once employed the railroad must give him the opportunity and the necessary encouragement so that he will enjoy his work and stick to it.

JOHN DEWAR,
Assistant Car Accountant, C. M. & St. P. Ry.

Questions About Unsigned Train Orders

PORTLAND, Oregon.

TO THE EDITOR:

I have read, with interest, your editorial of September 10, on "Why Require Signatures to Train Orders?" The unrestricted use of the 19 form of train order means that the train dispatcher may issue all his orders, both restrictive and those that confer right, on the 19 form and issue as many as may be necessary for a train to receive at one point, and then dismiss them from his mind. If one of the orders is lost in making delivery, or the operator misplaces or overlooks one or more of them, the dispatcher may be immune from responsibility. That fact, no doubt, enters to quite an extent into the desire on the part of the average train dispatcher to use the form without restriction. This should be taken into account by each management when its train dispatchers so strongly advocate the practice.

When a dispatcher sends a number of orders to a certain train at one point, using Form 31, and the operator fails to transmit the signatures to all of them, then it is clearly his duty to require the operator to obtain and transmit the signatures to those that have been overlooked before he completes any of them. This is the one great protective feature of the 31. Form 31 cannot with reason be entirely abandoned; but we can increase the use of the 19 form to probably 95 per cent of all orders issued.

With clearance cards indicating the number of train orders and checked by the dispatcher, and the rules and practice properly stiffened up, we may provide for a large percentage of cases; but before changing any rules let us carefully enumerate the typical situations in which signatures must be required. Consider Rule 217. For an order sent through third parties to a conductor at a non-telegraph station, the dispatcher must get signatures. Why? Because the dispatcher must know that the order has been received by the superior train.

Take Rule 219, covering the case where the engine has passed a train order signal. Unless you require the signature, the train may pull out while the operator is trying to deliver the order. This has happened a good many times.

If you have a work extra between B and D, and you desire that it shall protect against an extra after a specified time, what assurance has the dispatcher that the work extra has received its order which places it under flag, if he does not obtain the signatures? If the dispatcher desires to annul the right of a work extra before its time limit expires, how may he positively know the annulling order is in the hands of the work extra without obtaining signatures?

Should the dispatcher desire to reduce a time order, how may he know all who are using the time have received the annulment of it before permitting the train, to run a less amount late if he does not obtain signatures?

If a dispatcher desires to give an extra right over all trains, A to Z, the order must be placed ahead of all trains on the section of road so restricted and the signatures obtained before the extra can be authorized to run. Why? Because he must *know* that each restricted train has reached the point where the order has been placed for it and has actually received it. Otherwise, it is a lap order and the extra so created and given right beyond the point where the order is placed could collide with the train against which it holds right, if such restricted train had not the order in its possession.

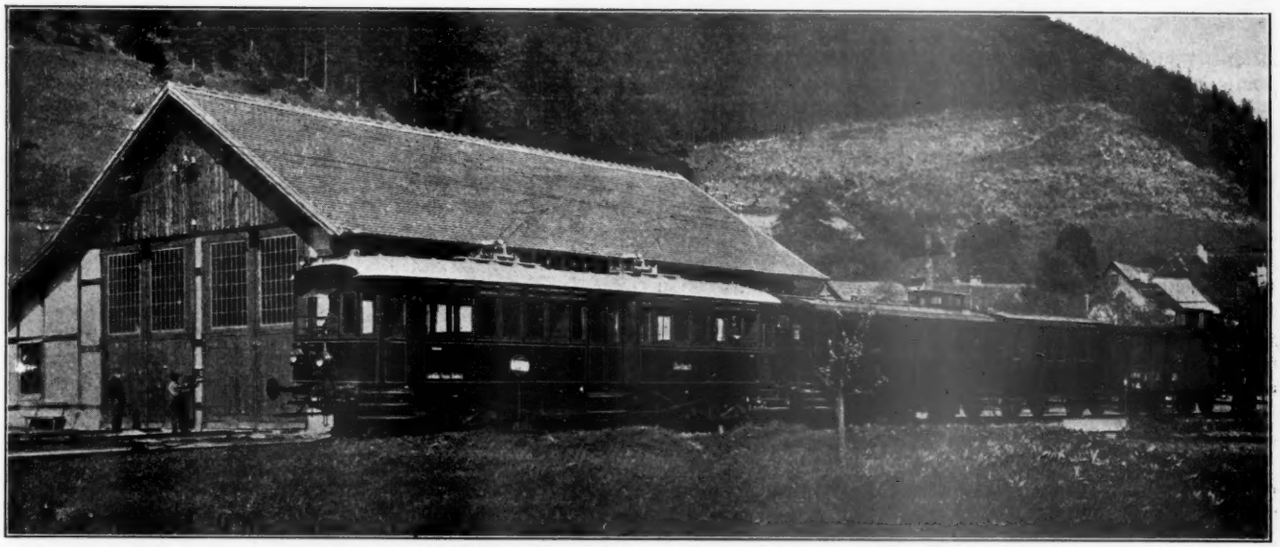
Other conditions arise occasionally where the dispatcher must know positively that the restricting order is in the possession of the restricted train before he can authorize the use of the order by the train upon which it confers right.

The 19 form should never be used to restrict a train at a meeting point, for the reason that the operator may become confused, especially where he has many duties to perform, and hand the restricting order to the engineman without stopping him. When an operator standing in front of his office holds up a 19 order to an engineer, nearly all engineers assume that the order does not affect them at that station; and so, in many cases, they run at such a high rate of speed that it would be impossible for them to stop before they side-wiped an opposing train, entering the siding beyond the office.

The middle order and block signals should not be considered in this problem. If considered, then we admit our system is faulty and that we are distrustful of it.

Mr. General Manager, when your over-zealous train dispatchers come to you with a proposition to use the 19 Form without restriction, ask them what they would do under the conditions as herein outlined. I will guarantee that they will immediately begin to hedge or attempt to cloud the issue.

WM. NICHOLS.



Electric Train on the Peggau-Uebelbach Line, Austria

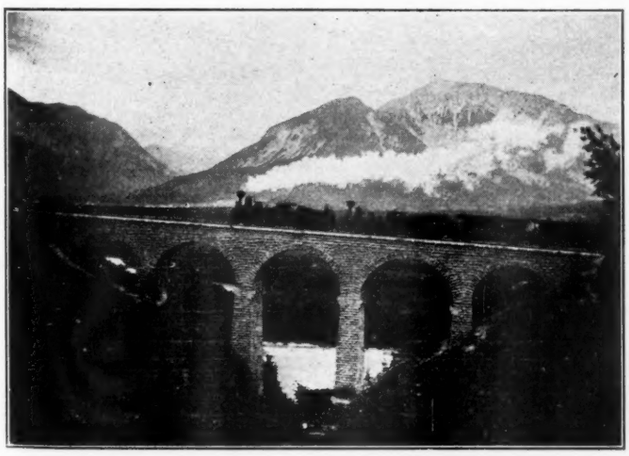
Railway Revival Central Europe's Greatest Need

Railway Chaos and Endless Custom-House Formalities an Effectual Barrier to Any Progress

By Colonel W. B. Causey
Technical Adviser to Austria

WHEN THE UNSETTLED economic conditions prevailing in Central Europe, which are the subject of the deliberations of various councils and high-councils, commissions and high commissions, are brought to a final analysis they resolve themselves into one problem—transportation.

The nations of Central Europe will never become self-supporting unless reasonable international trade relations and reasonable co-ordination of lines of transportation are re-established and apparently without some strong hand this co-ordination will not take place. When the treaty makers dismembered the old Austro-Hungarian empire they took no account of existing railway systems, although they undertook to give consideration to every other phase of human life from ethnology to military contingencies.



Hollenburger Bridge, Karawanken Railway

Some slight conception of the unnatural barriers which are placed in the way of transportation under the present absence of co-ordination may be gleaned from the following. Before the war a traveler could take a train at Trieste (see map) and go through Vienna, Cracow, Lemberg and to the eastern extremity of Galicia without a passport or other custom-house formalities. Now in making the same journey the passenger must submit to passport and customs examinations at five international boundaries, viz., Italy-Jugoslavia, Jugoslavia-Austria, Austria, Czechoslovakia, Czechoslavakia-Poland, Poland-Roumania—in a total distance of only 968 miles—or practically the same as that from New York to Chicago.

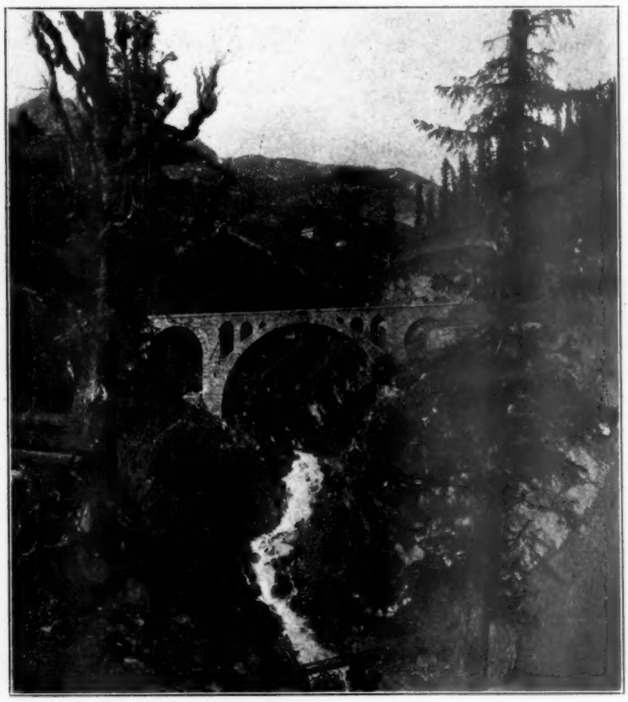
The inconvenience and discomfort to passengers, aggravating as it is, is a mere incident compared with the hindrance which such customs formalities place in the way of the free movement of freight. It is now three years since the dissolution of the old Austro-Hungarian monarchy and commercial treaties between the new states are still in the making. Travel between the countries is almost as difficult as ever and many railroad lines, some of which before the war carried a heavy traffic, have not even been re-opened to international commerce. The result of this separation of states can only be appreciated by a study of the map. The Austrian State Railways are, of course, less extensive than before the war. Furthermore, some of the succession states, notable Czechoslovakia, have their rail lines radiating from Vienna, a foreign city. In order for Czechoslovakia to have adequate transportation service, free movement of freight and passengers over the Austrian border line is essential. It is as if, in America, all of the principal east and west rail routes passed through the province of Ontario, Canada. Under such conditions artificial and unnecessarily stringent customs regu-

lations would greatly impede commerce even between two points in the United States.

Before the war, with the exception of the Southern Railway, 1,385 miles in length (333 miles of which were in Hungary); the Bustiehrader Railway, 262 miles; the Aussig-Teplitz Railway, 157 miles; and some other private railways of lesser importance, the railways of Austria were owned and operated by the government and constituted the Austrian State Railways. Similarly the principal railways of Hungary were owned and operated by the government as the Hungarian State Railways. The Austrian State Railways and the Hungarian State Railways were as entirely independent of each other as any two systems in the United States, but these two systems had interchange agreements with each other and with the other railways of Central Europe very similar to such agreements between the railways of the United States.

It will be remembered that the Austro-Hungarian empire before the war included, besides Austria and Hungary, what are now Jugoslavia and Czechoslovakia and portions of Italy and Poland. The former through route from the English channel to Constantinople followed the valley of the Rhine, crossed Germany to the Austrian border, followed the valley of the Danube to Vienna, Budapest and Belgrade, and led thence to Sofia and Constantinople. From Budapest there was another main line of travel to Bucharest and the Black Sea. Vienna and Budapest are connected by a double-track line north of the Danube and a single-track line south of the Danube. The double-track road was formerly the main line of travel. It runs through what is now Czechoslovakia and because of the friction between the Czechs and the Hungarians there has been no through traffic on this double-track line since the revolution in November, 1918. Therefore, all of the traffic from Vienna to Budapest and other parts of Hungary has since the revolution been moved over the direct single-track line on the south side of the river and over a roundabout line of the Southern Railway.

The Southern Railway is double-tracked between Trieste and Vienna and on account of this, as well as of its more favorable grades, it is the principal line of travel from Vienna to the Adriatic and to the East. From Pragerhof, about halfway between Trieste and Vienna, a single-track line runs to Budapest, thus placing Budapest in direct connection with Trieste. This single-track line runs through a flat country



Doessenbach Bridge, Tauern Railway

and was built for heavy traffic, but for nearly two years there has been no movement on this line across the Jugoslav-Hungarian border at the Mur river—with the exception of three trains of American foodstuffs which were forced through by

Principal Railways of the Former Austro-Hungarian Empire

the Allied Railway Mission in the fall of 1919. In spite of all the pressure brought to bear on the Jugoslavs they have steadily refused to open this line to traffic, alleging political and military objections. This attitude of the Jugoslavs forced the movement of 50,000 tons of American flour to Budapest in the summer of 1920 over the long and mountainous route via Graz, Fehring and Steinamanger.

Recently a partial resumption of through schedules from Budapest to Belgrade has been secured. Passenger trains from Paris to Constantinople are now running through the Simplon tunnel, Milan, Venice, Trieste, Laibach, Steinbruck and Zagreb, thence to Belgrade, Sofia and Constantinople—instead of Paris, Vienna, Budapest, Belgrade, which is the direct line and which, as before stated, was the pre-war route.

As a result of the new frontiers the Southern Railway, although a private corporation, instead of being operated under one administration, is cut up into practically four systems: Italian, Jugoslav, Austrian and Hungarian. However, the Austrian and Hungarian lines work very closely together and the Hungarian lines recognize the authority of the central administration of the Southern Railway Company in Vienna. To a certain extent the Jugoslavs also recognize this central administration. The Italians do not recognize it.

Instead of a system of 10,893 miles the Austrian State Railways now total only 2,581 miles, and instead of one central administration in Vienna the lines in Bukovina are operated, when they work at all, from Bucharest; the lines in Galicia from Warsaw; the lines in Czechoslovakia from Prague; the lines in Jugoslavia from Belgrade; and the lines in the South Tyrol and in Goerz, now Italian territory, from Rome. Apparently no consideration was given to the economic and transportation consequences entailed by the fixing of new frontiers, as in fixing these frontiers no effort whatever was made to maintain the integrity of certain transportation routes, although no strategic or political advantages were involved. For instance, the Southern Railway line from Marburg in Jugoslavia to Innsbruck in Austria runs for a short distance through Jugoslavia, thence through Austria to Innichen, thence through Italian territory to the Brenner Pass, then again into Austria. Changes of engines and crews, and on local passenger trains of equipment, is the present practice at all these borders.

In another case on the northern border of new Austria the boundary line was manipulated so as to leave an important junction, railway station and repair shop in Czechoslovakia, while the town which the station served was left on the Austrian side of the boundary, thereby making it necessary for the people to go through passport formalities in order to reach the railway station. This railway station was also the terminus of two narrow-gage lines running into Austria and passengers have been compelled to leave the trains at highway crossings before reaching the station unless properly supplied with passports. Anyone who is familiar with present conditions in the succession states can testify as to the difficulties surrounding the passport problem.

On the Mittenwald Railway in the Tyrol

Typical Country Through Which Austrian Railways Pass

The double-track line from Vienna to Lemberg and to the Galician oil fields south of Lemberg is one of the most important transportation routes in Central Europe. Before the war the heavy traffic in grain and oil from Eastern Galicia and coal from Upper Silesia and the district around Teschen (see map) made this one of the busiest and the most profitable lines in Central Europe. There was also a heavy traffic in manufactured articles from West Galicia, Moravia and Vienna, as well as from the great manufacturing districts in the coal fields. In addition to the traffic mentioned there was a heavy passenger traffic over this line from Vienna to Germany and Russian Poland and to Galicia and other Austrian territory.

Now, instead of being operated under one administration, this line is divided up into Austrian, Czechoslovak and Polish sections, and for weeks at a time during the past twelve months there has been an absolute interruption of through traffic due to the political differences of the new states. Although both the Czechs and the Poles are Slav peoples there has been much more friction between them and the difficulties of railroad operation have been much greater

than between the Czechs and the Austrians. These little pleasantries of life are things that can only be fully appreciated by residents in this part of the world. Chauvinism and ultra-nationalism are two great obstacles to the resumption of normal life in the territory comprising the succession states.

Railroad Executives Confer on Rate Reductions

WASHINGTON, D. C.

IMPORTANT QUESTIONS of policy with particular reference to rate and wage reductions are to be considered at a meeting of the member roads of the Association of Railway Executives at Chicago on Friday of this week, following a report of the executive committee of the association which has spent three days in Washington going over the entire railroad situation with the President and other governmental authorities. As a result of the conferences the railroad executives found brought to bear upon them a tremendous pressure for more definite action on the part of the railroads themselves in the direction of rate reductions, on the basis of which the committee has prepared recommendations for action by the member roads.

The executives met in Washington on Friday, Saturday and Sunday. They conferred with Chairman McChord of the Interstate Commerce Commission and Secretary Hoover of the Department of Commerce on Friday. On Saturday morning they called on President Harding and later they talked with Chairman Cummins of the Senate Committee on Interstate Commerce, Chairman Winslow of the House Committee on Interstate and Foreign Commerce and Chairman Anderson of the Congressional Joint Commission of Agricultural Inquiry. Among other subjects discussed with the President and particularly Secretary Hoover was the topic of unemployment. It is understood that the railroad men told that the roads were now increasing their forces to some extent as the volume of traffic and their earnings have increased, and a statement issued by the Department of Commerce referred to conferences held by Mr. Hoover with the heads of great national industries, including railways, "from which have resulted definite steps undertaking to meet the emergency in many practical directions." In this connection the early passage of the War Finance Corporation bill now before the Senate was urged as an important means of enabling the railroads to take steps to increase their forces and their expenditures.

The railroad bill was also discussed with others with whom the railroad executives conferred; and while it appears that the bill will be passed, as soon as the Senate disposes of other measures which have been allowed to take precedence, it was pointed out to the railroad executives that the so-called "agricultural bloc" in the Senate, consisting largely of western senators and some of the radicals, is preparing a most vigorous fight against this bill, and in favor of Senator Capper's bill to repeal Section 15-a, unless something can be done to insure a reduction in freight rates. If the railroads could see their way clear to do something in the direction of silencing some of the clamor from the west the prospects for early action on the bill might be improved. While the railroad executives were in Washington there was a meeting of the "agricultural bloc" senators at the home of Senator Capper, where plans for a strong effort to reduce rates were discussed but deferred for another meeting to be held this week.

It is understood that the railroad executives went away from Washington strongly impressed with the view that some sacrifice on the part of the railroads in response to the general demand is practically forced upon them by the situation if they are to escape the consequences of public resentment and a loss of sympathy in high circles in Washington. A number of predictions that the conference would result in rate reductions, to be followed by further efforts toward wage reductions, have appeared in the Washington newspaper correspondence, evidently inspired by some of those with whom the railroad presidents talked. Senator Cummins was quoted as saying he believed the executives would vote at the Chicago conference to reduce freight rates and that the carriers would then probably ask the Labor Board for a further reduction in wages or appeal to Congress for legislation to meet the situation.

Chairman McChord of the commission had been carrying on an interchange of views with the railroad executives previous to the conference last Friday, in which he has urged that they would improve their standing with the public by taking earnest steps toward a more general downward revision of rates and the suggestion was made to the railroads in several quarters that they would receive public support in an effort to bring about further wage reductions if they would first take action themselves to reduce rates. While the executives pointed out that to reduce rates before there is a further reduction in expenses would mean that many roads would have to give up their entire net income under present conditions, while some would merely have their deficits increased; and while they did not talk for publication, it is believed that the recommendation of the committee is in the direction of some reduction now in the rates as to which there has been the most complaint and the promise of further reductions to come at a later date and to the amount of any further wage cut.

The members of the Interstate Commerce Commission called on President Harding in a body on October 6. It was officially stated that the call was merely for the purpose of paying respects to the President, who had not met all of the commissioners, somewhat in the manner that the Supreme Court justices call on the President at the opening of the fall term each year, but there is a belief in many quarters that the present administration is seeking to make the commission a more responsive part of its organization than it has been heretofore and the conference gave rise to rumors that something more than official courtesy was involved. However, the commissioners were with the President but 15 minutes.

The Senate Committee on Interstate Commerce held a meeting on October 7 to discuss the railroad securities bill and adjourned to hold another meeting on Wednesday of this week. The committee has already reported favorably the Townsend bill, which differs somewhat from the Winslow bill to the same purpose, which was passed in the House. The House bill as passed contained an amendment providing that no claims on account of the so-called inefficiency of labor during the period of federal control should be paid from any of the funds provided for in the bill and this was worded in such a way that a railroad which failed to settle with the Railroad Administration might be barred from obtaining a court decision on this point. The Senate committee considered a possible modification of this amendment providing that except for the payment of a final judgment, order, or decree of a court no money in the Treasury shall be used to make, in connection with the claim of any carrier, any payment or allowance on account of the so-called inefficiency of labor, and also that a final settlement with such carrier shall forever bar the carrier from prosecuting any further claim against the United States arising out of or incident to federal control. It is distinctly understood that the railroads will secure no allowance for inefficiency of labor in any settlement which is effected with the Railroad Administration, but it is believed that some roads will desire to make a further test of their claims on this account in the courts.

The Railroads' Appeal to the Intelligent Public*

Pressing Need for a Sound Transportation Policy—Statesmen Standing Helpless—Clear the Decks for Action!

By Samuel Rea
President of the Pennsylvania Railroad

A SEVERE business depression exists, and notwithstanding the high wages, shorter hours and easier working conditions that have existed for several years, a program of discontent is being disseminated. However, I take it that we are prepared to take our share of the burden to preserve law and order and regular employment. The railroads have much to lose by a policy of pessimism, delay or silence. Dividends have been reduced and loss of traffic has brought many of the eastern railroads down to the figures of 1912, and which combined with heavy wages and taxes shows a return of about 3 per cent. per annum earned in the last 12 months. The mandate of the Transportation Act entitled the railroads to rates that would produce a return of up to 6 per cent. on their property investment taken in groups, but the mandate failed of its purpose; it was not a guarantee in any sense of the word; and attempts to enforce it would cause a more serious restriction in business.

The President of the United States called a conference on unemployment. That conference is to deal solely with the practical proposition of securing steady employment, but the first proposition for its consideration that appeared in the newspapers was the reduction in railroad rates and the reduction of railroad wages. There is always a feeling that nothing should stand in the way of reducing railroad rates no matter how low they are, but unprofitable rates prevent railroad expansion and improvement and in the end the shipper reaches his limit of profit because of lack of cars or facilities, or bad service. Our splendid new highways, many of them paralleling the railroads, with the heavy cost for their repairs and the corresponding increase in taxation will in very large part fall upon the railroads. In the State of Pennsylvania, however, the Public Service Commission has made an equitable attempt to deal with situations of this character by declining to authorize common carrier motor service where the railroads or the trolleys were already giving a reasonable public service, and the public could not support both; but this foresight is by no means a common experience.

The taxation that has been placed on the backs of the railroads is now so heavy that it is a serious menace to their ability to pay their fixed charges. Further, the railroads need relief through the Government Labor Board from the National Agreements on wages and working conditions. It is a gratification to say that our sensible employees on the Pennsylvania have materially improved their working efficiency and shown the greatest interest and loyalty in restoring prosperity to the railroads; and if encouraged and not terrorized they will do much more.

Measures to Improve Conditions

Now this brief summary of conditions which place an embargo on prosperity need not frighten us. No real remedy can be provided for the railroad situation until the steel, coal and building industries revive at prices that will encourage the public to buy. The first positive step that could be taken is the passage of the funding bill by Congress. This of itself would do little to help the railroads, but it will enable the Railroad Administration to use its holdings of railroad securities to obtain cash and pay over to the railroads amounts due them. With this four or five hundred million dollars the railroads could pay off their current obligations and resume the upkeep of their equipment, roadway and stations and so give additional employment. After this funding will come the maintenance claims which are still undisposed of by the Government. And settlements have not yet been effected for the guaranty period by the Interstate Commerce Commission. If our estimate of the amounts due is correct, fully $1,000,000,000 actually held by the Government might enable railroads to carry on a fair volume of maintenance and replacement work. This is not a fanciful sketch nor a bid for generosity to the railroads. The President of the United States is anxious for a final settlement, but Congress has not yet shared the same convictions—although the House passed the funding bill and many able minds in the Senate see its great benefits. It will require speeding up by the Railroad Administration, the Congress and the Interstate Commerce Commission if the funds are to be available to help out in the present depression. Meanwhile the railroads are grateful for what the President has done and are anxious to help him in reducing unemployment.

Freight Rates

A further help to business would unquestionably be lower rates, but would we ask any manufacturer today to buy raw material and manufacture and sell new goods, with the knowledge that they will not realize their actual production cost? That is what the railroads are requested to do. They have had glowing promises of increased business if lower rates were made effective, but most of these glowing promises have not materialized; the public is not displaying any purchasing power and waits for lower commodity prices.

Wages

The law of supply and demand should ultimately settle railroad wages and working conditions, but meanwhile a realization of the conditions by the Federal Labor Board and the labor leaders would do much to promptly adjust that situation. Railroad managements do not desire to have under-paid or discontented working men. We have no quarrel with the Labor Board or with labor unions, and desire none. On the contrary, I have long waited for the time when the labor leaders, and the labor journals, instead of believing that their position was more secure by hostility to railroad managements and railroad owners, would realize that co-operation was much better for both and was the only way to induce the public to pay for their railroad service an amount which would mean fair wages to the employees, a fair return to the owners and a constantly improving and reliable service to the public. The Transportation Act should be amended so that subordinate railroad officers are not thrown under the same regulations as to wages and working conditions as the men. This is breaking down discipline and encouraging laxity. It can all be adjusted without loss or suffering if the labor leaders will do their duty. They are in stronger position if they rely upon the public support for fair wages and working conditions than to talk about strikes which would settle nothing and continue a

*Address before the Pennsylvania State Chamber of Commerce at Harrisburg, Pa., October 10.—Abridged.

policy which leaves railroads no alternative but to maintain high rates for transportation service so as to continue wartime pay and working privileges. The labor leaders must, therefore, answer the public demand as to what they are willing to do to help decrease unemployment and promote prosperity throughout the country. So far they have conceded nothing.

The Pennsylvania Railroad is reported to be in conflict with the labor unions, and especially with the Labor Board. That is not true. * * * None of us is infallible. The Labor Board made some slips and also rectified some. We shall never question the Board's actions and powers so long as they enable us to establish and keep harmonious relations with our employees, maintain the credit of the Company and continue an efficient and economical transportation service. Congress intended by the Transportation Act to encourage direct negotiations with employees, for the act makes it the duty of a carrier and its employees to exert every reasonable effort, through conferences, to bring about settlement of disputes. But Congress did not undertake to regulate the manner in which these conferences should be carried on or the method of selection of representatives. The Pennsylvania inaugurated, with the co-operation of the employees, a method of employee representation which adhered to that vitally important principle, "employee representation," and which has deservedly earned commendation of both employers and employees. The Labor Board has, in effect, directed us to annul and disregard these agreements. Compliance with this order would necessarily involve an abandonment of the method of conducting negotiations with its own employees which has been approved by a large majority thereof. The Company is desirous of avoiding conflict with the Labor Board, but when compliance with the order involves disregard of public duties and the principles of sound management, and such order in its opinion deals with a subject matter over which the Board has not been given jurisdiction by Congress, the Company believes that non-compliance is a duty.

Lower Taxes

The Governments, Federal, State and Municipal, could do much to help railroad conditions and the industries by relieving the heavy burden of taxation. In addition the Government might relieve the public by the abolition of the Federal tax of 8 per cent on passenger fares and 3 per cent on freight shipments. A suggestion has been made to cut these in half, and that is a step in the right direction. Taxation, however, cannot be finally reduced without wiping out a great number of unnecessary Governmental expenditures, Federal, State and Municipal, together with the numerous bureaus for so-called regulation and investigation, which are the result of unnecessary restrictive laws no longer beneficial to the public.

Freedom From Excessive Regulation

The Federal Transportation Act and the legislation of all the states and municipalities should now be revised and an attempt made to give the railroads the greatest freedom from Government interference and regulation, with the ability to carry on their own business with their employees and the public in a way that will restore initiative. Under present conditions Federal and State expenditures for railroad regulation and taxation are particularly costly, and their advantage to the public, aside from avoiding discrimination in rates, which is a very great advantage, has become questionable. I refer to amending or wiping out laws such as the Adamson act, the full crew laws, various provisions of the Hepburn act and some provisions of the Clayton act. They would relieve and correspondingly strengthen the Interstate Commerce Commission and the state commissions in the discharge of their widespread duties.

A Sound Transportation Policy Needed

The whole transportation question must be faced in a businesslike way. The country must decide whether it wants strong or weak railroads. A cabinet officer like a Secretary of Transportation would be helpful to enforce a continued constructive policy and prevent waste or duplication of government appropriations for transportation purposes. If we do not want strong railroads, and do not want them operated under commercial conditions, let the country so decide. The whole tendency of the time is that from lack of requisite courage to enforce a real policy affecting the railroads, we have tied their hands by unnecessary restriction and regulation and increased their expenses so that we are getting close to a condition where either the Government, with the consent of the citizens, must purchase the railroads and assume through taxation the costs that are not covered by rates, or else give a fixed guaranteed return sufficient for that purpose and put it all on the backs of the citizens in the shape of taxes. I need not tell you how greatly I deplore what appears to be a world-wide idea that in some miraculous way these great public enterprises, which are owned by our citizens and provide the cheapest transportation service in the world and the most efficient service, shall not be given the freedom to work out their own problem and be made self-sustaining out of their own revenues, but that in some way if we can only put them on the backs of the Government, Federal, State and Municipal, and hide their cost and expense, and subject them to a changing policy every few years, we shall have cheaper and more efficient transportation. Further, that we can take the so-called strong and weak railroads and irrespective of cost or necessity so route the traffic and put them into some kind of system omelets that will prove less costly than the present systems.

Government Competition in Transportation

Motor trucks on the highways are much more expensive and less reliable than rail transportation, although in some places they are a great convenience in developing the country. I do not condemn them, for I regard good modern highways as a necessity. I only ask that they pay a fair share of the cost and taxation.

There is not a large railroad system today that has not been supporting and operating for public use hundreds of miles of unproductive railroads. We have in the Pennsylvania System a couple of roads on the Maryland, Delaware and Virginia peninsula, and these lines also operate steamers as feeders, that connect them with Baltimore and develop a part of the country where transportation facilities are scarce. No money has been made out of these railroads, but on the contrary several millions of dollars have been spent for their construction and to pay their operating losses and fixed charges, and keep them operating for public use. Since the roads were built much of the business which formerly went to Baltimore now has a North and South movement, or a direct motor movement. This is due to changed commercial conditions resulting from the use of storage warehouses, and the method of competitive purchasing of crops on the ground by the commission houses in various cities, and to the use of motors on the adjacent state and local concrete highways. In addition to the new highways the State of Maryland has subsidized ferries across the Chesapeake, which are and will be competitive with the boat lines of these weak companies, but it seems unwilling to subsidize the boats of the companies that have been endeavoring to provide facilities across Chesapeake Bay for so many years in connection with these rail lines. I am not criticising the State for what it conceives to be its best highway policy for the benefit of its own citizens, but I am pointing out that when these new highways and subsidized ferries are provided

by the States these railroads and steamer lines will have lost the traffic, and the cost of these competing routes is laid largely on these railroads as taxpayers. These lines, with such a loss of business, with high taxes and wages cannot, therefore, be much longer maintained. We can also ask what is the encouragement for railroad expansion and improvement under such conditions. The public pays the cost of having no definite policy to adopt.

We are gradually, by extreme regulation, putting the railroads deeper into politics, and the deeper they get the less satisfactory they will be to the people and the more costly they will be; but the statesmen and fair-minded representatives in the State and National legislatures who realize the situation and are deeply concerned in the transportation service of the country as a whole, stand almost helpless. While, therefore, I am convinced that prosperity will return and the country will again prove its ability to exceed all past records for productivity and business, yet to clear the decks for action some of these questions must be tackled in an earnest way; and the sooner it is done the sooner shall we as a nation enter upon the high road to national contentment and prosperity.

Unemployment Conference Urges Rate Revision

Other Steps Agreed Upon by President's Conference—Urge Speed in Passing Financial Legislation

WASHINGTON, D. C.

"READJUSTMENT of railway rates to a fairer basis of the relative value of commodities, with special consideration of the rates upon primary commodities, at the same time safeguarding the financial stability of the railways," was the first of a series of recommendations for measures for the permanent recovery of employment and business generally adopted by the President's Conference on Unemployment at its meeting on Tuesday, October 11. The conference also recommended "settlement of the financial relationships between the government and the railways, having in mind the immediate necessity for increased maintenance and betterments, making effective increased railway employment and stimulation of general employment, in order that the railways may be prepared for enlarged business as it comes."

The recommendations were reported to the conference by the organization committee on the basis of such parts of reports submitted by the various subcommittees of the conference as to which there was complete agreement among the committee members. Recommendations proposed within the committees which involve controversial points were reserved for further discussion at a session of the conference on Thursday, the purpose being to present to the country a program on which the whole conference could unite and thus to avoid many points on which sharp conflicts between the representatives of business and of labor have developed in conference. For example, the reference to the financial relationships between the railways and the government was the result of recommendations favored by a majority of the members of the committees on transportation and on manufactures urging the passage of the railroad bill now pending in the Senate designed to provide the funds for a settlement. W. S. Carter, president of the Brotherhood of Locomotive Firemen and Enginemen, had, however, insisted upon a qualification of the recommendation to provide that the funds received by the railroads should be used exclusively for the purpose of employing additional forces and should not be used for work performed in outside contract shops. The labor element in the manufactures committee, which included Samuel Gompers, also took the same position with reference to a similar recommendation made by a sub-committee of the manufactures committee. The latter had prepared a report which also proposed wage reductions, the reduction of freight rates, the repeal of the Adamson law and the transfer of the functions of the Railroad Labor Board to the Interstate Commerce Commission. This was approved by a majority of 11 to 3 in the committee. The transportation committee report had also expressed the opinion that business would be improved if people stopped waiting for price and rate reductions.

The recommendations in the form presented by the organization committee were adopted by the conference practically without discussion. When the reference to the financial settlement was adopted Matthew Woll, vice-president of the American Federation of Labor, stated that no objection was made on the ground that it was merely a declaration of principle and that some special considerations with reference to it would be presented by the labor representatives on Thursday.

In addition to the two recommendations referred to the report as adopted included the following:

"Recovery of our industry and employment must necessarily be a process of gradual healing of the great economic wounds of the world war. This healing is making distinct progress. Without attempting the impossible task of assessing the relative weight of different forces, the conference presents the following summary of the more important matters that require constructive and immediate settlement if recovery in business and permanent employment are to be more expeditiously accomplished:

"Speedy completion of the tax bill with its contemplated reduction of taxes, in order that business now held back pending definite determination may proceed.

"Definite settlement of tariff legislation in order that business may determine its future conduct and policies.

"Limitation of world armament and consequent increase of tranquillity and further decrease of the tax burden not only of the United States but of other countries.

"Steps looking to the minimizing of fluctuations in exchange, because recovery from the great slump in exports (due to the economic situation in Europe) cannot make substantial progress so long as extravagant daily fluctuations continue in foreign exchange, for no merchant can determine the delivery cost of any international shipment.

"Definite programs of action that will lead to elimination of waste and more regular employment in seasonal and intermittent industries, notably in the coal industry, in order that the drain upon capital may be lessened and the annual income of workers may be increased.

"In the field of all the different industries and occupations the rapidity of recovery will depend greatly upon the speed of proportionate adjustment of the inequalities in deflation. A table is attached hereto, drawn from various sources, showing the percentage of present levels above the levels of the same commodities and services of the pre-war period. It will be observed that agriculture has reached an unduly low plane, while transportation, coal and some branches of the construction industries are of the highest. It will also be observed that there is an entire disproportion between the

price of the primary commodities and the ultimate retail price. These disproportionate increases in the progressive stages of distribution are due to increased costs of transportation, enlarged profits, interest, taxes, labor and other charges.

"If the buying power of the different elements of the community is to be restored, then these levels must reach nearer a relative plane. For example, the farmer cannot resume his full consuming power and thus give increased employment to the other industries until either his prices increase or until more of the other products and services come into fair balance with his commodities, and therefore the reach of his income."

Conference Opened by Hoover

In opening the conference Secretary Hoover said that the major purpose of the conference had been to provide suggestions and means for emergency organization to meet the situation of the coming winter, and that this object had to a large extent been accomplished by the adoption of the emergency program which had met an extraordinary response from many communities. The second purpose was to suggest permanent measures for the recuperation of industry and employment and as to these the organization committee had prepared the recommendations previously quoted based on the committee reports.

He pointed out that the conference is not a legislative body whose decisions are binding, apparently for the purpose of suggesting that one of the primary objects to be accomplished is the enlistment of public interest in the problem, and he said that the most important object is to afford some relief locally for the 10 to 20 per cent of the unemployed that will be in an actually destitute condition.

At the meeting of the conference on October 12 the committee on construction industries presented a report urging a reduction in freight rates, as follows:

"This group, recognizing that transportation problems are not within its peculiar province desires, nevertheless, to express the conviction that every reasonable step should be taken, necessary to enable the railroads to resume their customary activities, and to reestablish efficiency, economy, and regularity in transportation service.

"Readjustments of, and reductions in, freight rates on construction materials are essential to a sustained revival of building activity. Increases in rates on construction materials imposed during the war left the construction industry under a relatively heavier handicap of increased transportation costs than had been imposed on most other commodities.

"To this war-time increase in freight rates has since been added an increase of 25 to 40 per cent, thus perpetuating and even magnifying the effect of the war-time policy of restricting general construction activity.

"The construction industry can not effectively function under a freight rate fabric artificially distorted by the continuation of restrictive war measures. A great economic waste would be incurred if, because of failure to reduce and readjust freight rates existing plants for the production of construction materials had to be abandoned and a new alignment of producing facilities established in accordance with the present rates, a fabric originally designed, in the public interest, to discourage the very thing which, in the public interest, the government now desires to encourage; that is, the normal operation of industry. The financial burden of such a readjustment of plants would have to rest ultimately upon the public; and its necessary effect would be to curtail existing competition and to limit the radius of distribution of many of the construction materials.

"In addition to such readjustment of freight rates on construction materials as will permit construction activity, freed from unnecessary artificial restriction; it is urged that such inequalities as may after such general readjustment, exist in the rates on various construction materials be investigated and removed by the Interstate Commerce Commission. We suggest the consideration of the practicability of encouraging during winter months the transportation of materials used in road and other construction work, thus utilizing transportation equipment which might perhaps otherwise remain idle.

"To meet the present unemployment emergency and to make renewed activities in the construction field possible does not require special concessions to the industry. But it does require a complete and prompt removal of unnecessary handicaps, restrictions and limitations, both direct and indirect, these including credit, freight rates, priorities, undue costs in relation to labor and materials, wasteful building codes, and the like."

It was recommended that Secretary Hoover appoint a committee selected from the various elements interested in construction, such as financiers, labor, engineers, architects, contractors, material manufacturers, and others to be known as the Committee on Construction Development, to be charged with the responsibility of preparing and making effective plans for co-operation with the governors and mayors in the several states in carrying on community conferences on construction.

Critical of the I. C. C.

The report also contained a paragraph saying that "the Interstate Commerce Commission did declare without full hearing from all the parties interested an emergency which took away from the construction industry the use of open top cars." "In the interest of an equal opportunity to all industry," the report said, "the Interstate Commerce Commission should provide full hearings to all interested in matters of this kind in the future." E. E. Clark, former chairman of the Interstate Commerce Commission, said he felt he must call the attention of the conference to the paragraph on priorities as he did not think the committee wants to add to the great volume of misunderstanding throughout the country on that subject. He said that Congress had delegated to the commission emergency powers over car service in the interest of the public and the commission had required for a considerable period the use of open top equipment in the transportation of coal in preference to other commodities in response to the most urgent public demand that coal be transported. The commission had no thought or idea of preferring one industry over another and this action was obviously necessary and the only thing to prevent people from suffering from want of coal. It would be absolutely impracticable, he said, to exercise such a power if it could not be done until after hearing all who insisted that their interests are paramount above all others, because the emergency would have passed. C. P. Neill, of the Bureau of Information of the Southeastern Railways, also protested against the attempt of the committee to make the conference go on record as criticising the Interstate Commerce Commission when the conference itself was not fully acquainted with the facts. At the suggestion of Mr. Hoover the committee agreed to delete the paragraph and bring in a separate report on this subject. With this and one other slight amendment, the report of the committee was adopted.

The conference also adopted reports of the committee on employment agencies, foreign trade and shipping. At the session on Wednesday, Mr. Hoover announced that the conference had received information of from 20,000 to 25,000 additional men recently taken into employment by railroads.

THE EL PASO POST of the Travelers' Protective Association, El Paso, Tex., adopted resolutions on October 1, urging legislation providing for the reestablishment by the railroads of the mileage book system and approving the Watson bill now before Congress. Telegrams were sent to senators and representatives of the states of Texas, New Mexico and Arizona, asking for their support of the bill.

M. K. & T. Improves Its Facilities at Oklahoma City

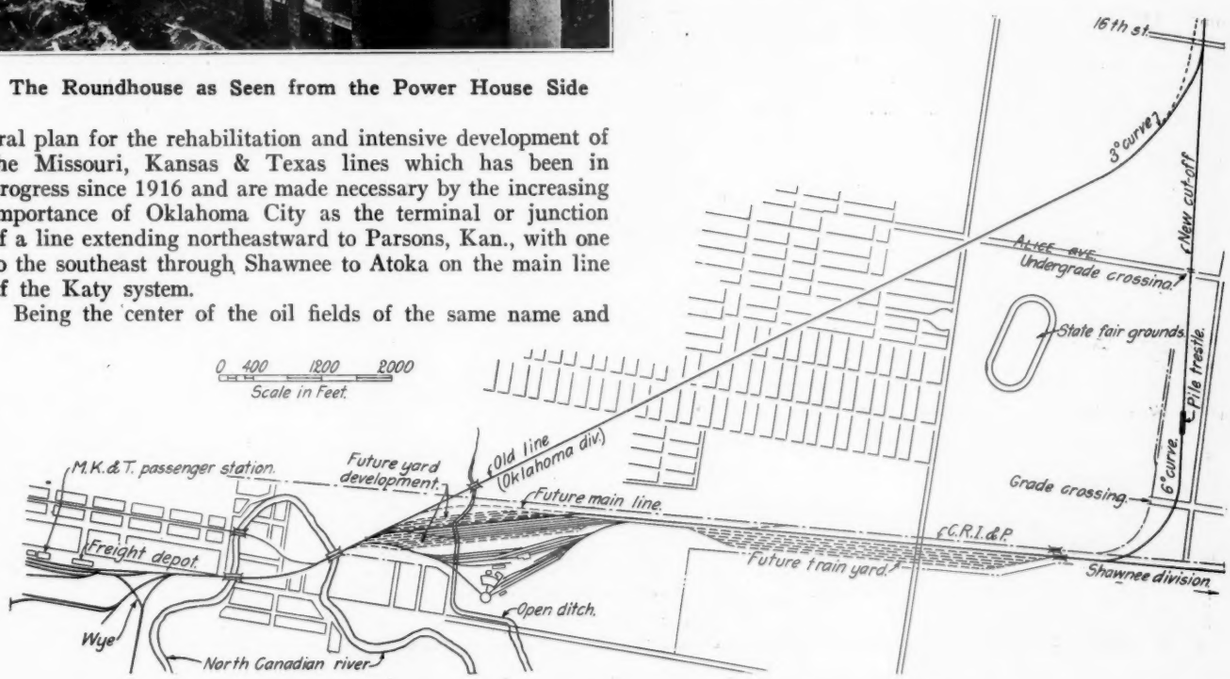
Engine Terminals and Yards Have Been Reconstructed to Take Care of Increased Business

TO OBTAIN an improved terminal operating arrangement and provide more adequate facilities for the handling of its locomotives, the Missouri, Kansas & Texas has completed a new engine terminal at Oklahoma City, Okla., together with a relocation of one of its entrances to the city, which improvements have the effect of expediting its yard operations greatly. These improvements form part of a general plan for the rehabilitation and intensive development of the Missouri, Kansas & Texas lines which has been in progress since 1916 and are made necessary by the increasing importance of Oklahoma City as the terminal or junction of a line extending northeastward to Parsons, Kan., with one to the southeast through Shawnee to Atoka on the main line of the Katy system.

The Roundhouse as Seen from the Power House Side

Being the center of the oil fields of the same name and serving also as a receiving point for pipe line oil from the Wichita Falls field, Oklahoma City has been the source of increasing traffic for the Katy, thereby increasing the importance of the Parsons-Oklahoma City line. As a consequence, it has also been necessary to effect appreciable improvements in the physical condition of this line, including the relaying of rail with 85-lb. steel, reballasting, bank widening, etc. Improvements have also been made at Osage, Okla., the intermediate terminal between Oklahoma City and Parsons. Here the yard tracks have been extended to increase the car capacity from 520 cars to 982 cars and three-quarters of a mile of main track was relocated. However, the principal improvements have been made at Oklahoma City and these have been carried out with the purchase of sufficient right-of-way to permit of ready future enlargement to several times the present capacity.

The junction of the Oklahoma and Shawnee divisions occurs only about 2,000 ft. east of the throat of the Oklahoma City passenger station yards (see map) and just south of a crossing with the Chicago, Rock Island & Pacific which lies parallel to the Shawnee line. Because of this it had been necessary in the past to locate the entire freight yard and engine terminal east of the junction of the two lines with the result that freight trains on the Oklahoma division could enter and leave the terminal only with a reverse movement that fouled the approach to the passenger station and also interfered with the service to various industry tracks in the business center of the city. It also resulted in frequent blocking of two important streets which crossed the railway at grade. The presence of the Rock Island tracks and the acute angle of the junction between the two M. K. & T. lines, as well as the industrial development in the neighborhood, precluded any local change in the Oklahoma division track which would overcome this difficulty. The situation as to the engine terminal was also objectionable. The layout was such that it was impossible to increase the number of stalls or to lengthen the existing stalls to accommodate larger locomotives. Moreover, the turntable was only 65 ft. long.



General Layout of the M. K. & T. Terminals at Oklahoma City

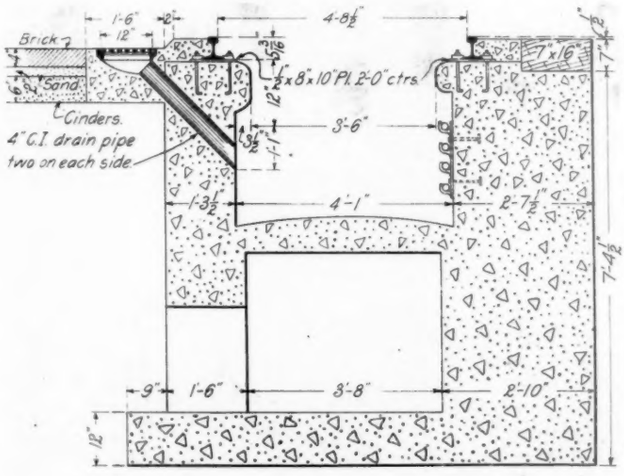
The situation was obviously one requiring drastic treatment and was accomplished as shown on the small map. A cut-off was constructed from a point about three miles out on the Oklahoma division to a connection with the Shawnee division about 9,000 ft. east of the junction. This enables

trains from both lines to enter and leave the freight yard over the Shawnee tracks and therefore by a direct movement. It also releases from main line service a portion of the Oklahoma division track which passes through a built up section of the city, involving a great many skew grade crossings with the city streets. This old line will now be used only for emergency or local industrial track service. The cut-off junction is located at a sufficient distance east of the existing yard to permit of the future construction of a train yard between the existing terminal and the junction and right-of-way for this purpose has been acquired by the railroad.

The old engine terminal has been replaced by a new plant built to the south of the freight yard on a site that will allow of a nearly full-circle development of the roundhouse whenever this is required, together with corresponding enlargement of the other facilities. The yard tracks and leads were modified only sufficiently to fit into the changes in the engine terminal and main track. One detail was to construct a switching tail track at the east end of the yard. Owing to the fact that the engine terminal site interfered with an existing wye track, a new wye was built just east of the passenger station so that it could be used as well for the turning of the passenger trains, so that all trains, whether outbound or inbound, may be backed into the passenger station.

A three-track car repair yard and a four-track coach yard were also provided just south of the freight yard. The coach yard is served with steam, water and compressed air.

The locomotive facilities in the new terminal embrace a 10-stall roundhouse with 5 additional radial tracks in the open, served by a 100-ft. turntable, with a machine shop, boiler house and engine room in a wing at one corner. The auxiliary facilities include a 300-ton reinforced concrete coaling station built by the Roberts & Schaefer Company, Chicago, a water softening plant with a 100,000 gal. capacity steel water tank for softened water built by the Graver Corporation, Chicago, a storehouse, a car repair shed and a foreman's office (both moved from the old site and rebuilt), two Robertson cinder conveyors, a lavatory and locker building and a National boiler washing system.

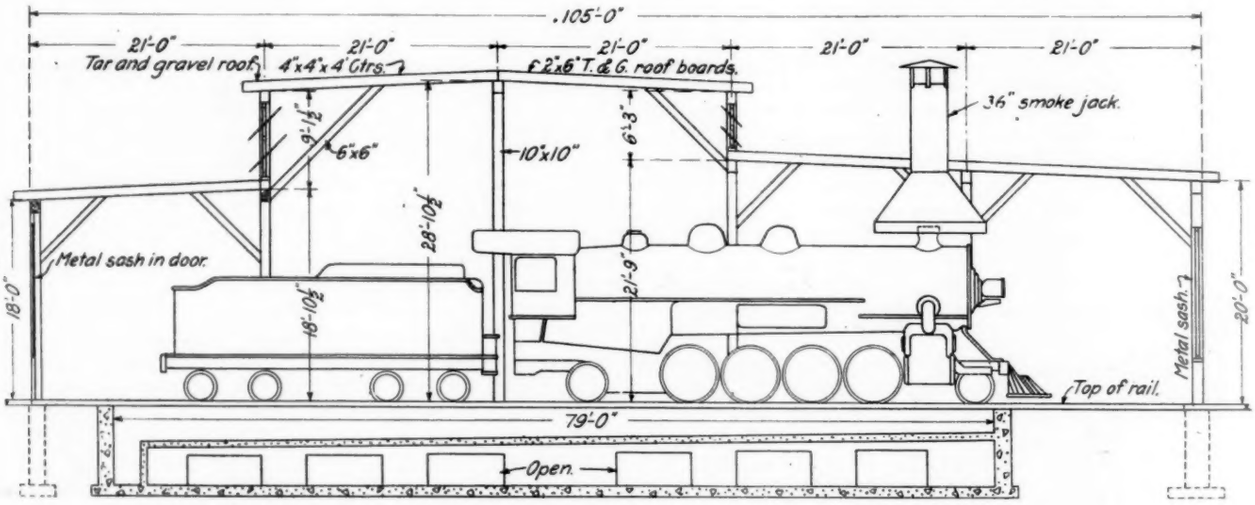


Typical Section Through an Engine Pit

The roundhouse follows the general lines of the more common type of roundhouse construction with a timber frame and roof and brick walls, but with the modern tendency towards large window areas in steel frames carried out to the fullest extent. In this connection the proportion of glass in the track doors is unusually large, as may be noted in one of the photographs.

Artificial lighting has also been given particular attention. Flood lights are provided at four points between each pair of stalls so that the interior of the house is truly "flooded" with light. White washing of the walls, timbers and ceiling adds greatly to the effect of the illumination in either the natural or the artificial light. This is brought out emphatically in the photograph showing the house illuminated by the flood lights. Considerable of the illumination is obtained through the monitor lights which are pivoted so that they can be washed from the roof and therefore require no washing scaffold on the inside. Improved ventilation is insured by the use of Johns-Manville asbestos smoke jacks of large area with stacks 36-in. in diameter extending through the roof.

The floor is paved with brick on a cinder base. One feature of the engine pit that is of interest is the provision of the rounded coping as a protection for the radiators which are mounted on the wide walls. The rails rest on steel plates placed directly on the concrete walls to which they are bolted.

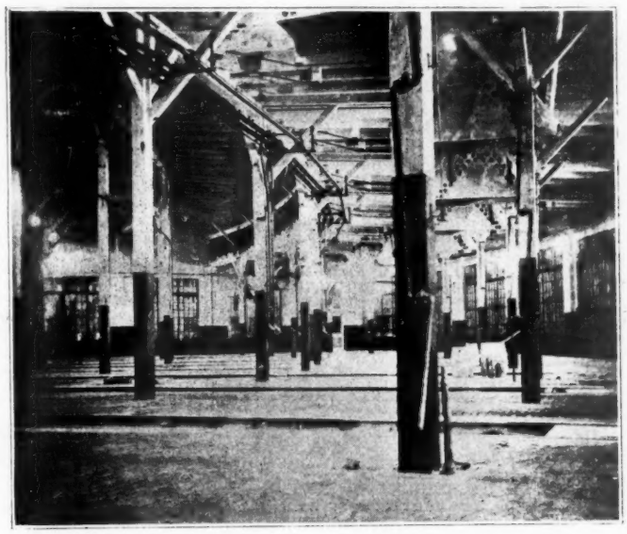


Typical Section Through a Roundhouse Stall

The power plant, machine shop and engine room wing is of construction similar to the roundhouse with the roof carried on wooden roof trusses. The boiler house contains two 250-hp. Heine boilers with furnaces designed for burning coal but modified to permit the use of oil as a fuel. The power plant is designed mainly for a supply of steam heat, hot water for the boiler washing, compressed air, etc., as the electric

light and power is purchased from a local public utility. The floors in the wing are of three types. Mastic floors are used in the engine room and a portion of the machine shop which also is provided in part with a cinder floor, while the boiler room has a concrete floor.

The 100-ft. turntable is operated by a Nichols tractor and is equipped with an essentially original type of end bearing,



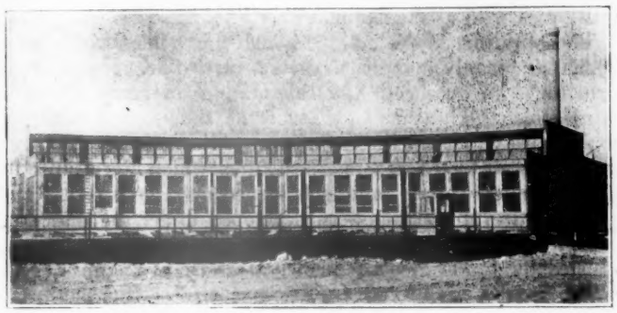
An Example of Modern Roundhouse Illumination

comprising the use of four M.C.B. car springs to act as shock absorbers when the locomotive runs onto the table. The design of these end trucks was worked out by the engineering department of the railway in co-operation with the American Bridge Company, the contractor for the table.

The water softening plant was provided to treat water from the city supply, this being water from the Canadian river, which contains about 24 grains of incrusting solids per gallon. The plant has a capacity of 20,000 gal. of treated water per hour, and reduces the hardness to less than 3.5 grains per gallon. In addition to the use of soda ash and hydrated lime, the plant provides for the use of ferrous sulphate as a coagulant to the extent of one grain per gallon during times when the river water is turbulent. The arrangement of the plant is such as to secure very economical operation, one man dividing his time between the treating plant, boiler washing plant, coaling station, ash pit and the stationary boilers in the powerhouse. Only about one hour of his time is occupied each day in the work at the treating plant. A matter of incidental interest is presented in the fact that a test of the treated water by the state health authorities resulted in the water being approved as satisfactory for drinking purposes, whereas the untreated water had been declared unfit for drinking.

Combined Storehouse and Oil Building

The storehouse is a brick and concrete building 103 ft. by 30 ft. in area with a platform at one end 55 ft. 10 in. long which also extends along one entire side of the building.

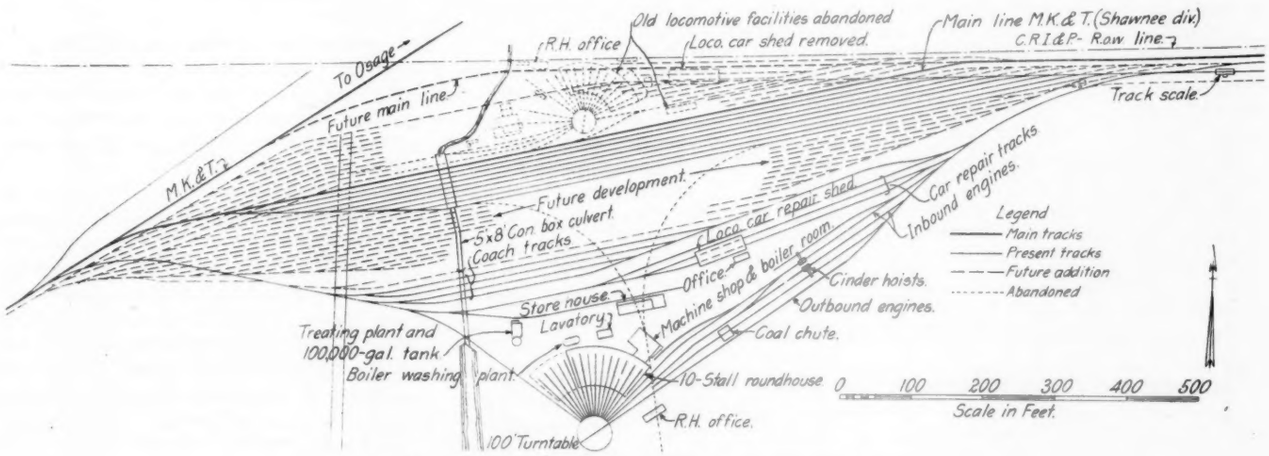


The Track Doors Contain Unusually Large Glass Areas

This storehouse also houses the oil storage which is equipped with pumps supplied by the St. Louis Pump and Equipment Company. The portion of the building used for this purpose has a basement containing oil tanks ranging from 120 gal. to 1,000 gal. capacity each.

The site chosen for the new engine terminal is in the flats of the Canadian river occupied by some portions of an abandoned channel of that stream and was available for terminal purposes only after 175,000 cu. yd. of filling had been placed. Some of this material was obtained from borrow pits nearby and from the excavation for a creek channel with the use of a dragline excavator. However, a large portion of the material was obtained with steam shovels and trains in a cut west of the yard on the site of the future train yard. The presence of a creek extending through the site of the yard not only entailed the excavation for its new channel but required the construction of 200 ft. of a 5-ft. by 8-ft. concrete box culvert under seven of the yard tracks.

The low land at the site of the terminal also added to the cost of the building foundations owing to the need of carrying the footings down to solid material. To avoid the use of excessive amounts of material in the foundation construction, the building wall foundations were constructed for the most



The Yard and Engine Terminal Reconstruction

part according to the beam and pedestal design with natural spread footings. A different plan was followed for the engine pits which were built with the two walls extending down to a footing slab with the engine pit floor suspended between the walls at a suitable elevation. In order to save material, the continuity of the side walls of the pit was broken at intervals by openings 6 ft. 8 in. long between the footing slabs and the floor slabs. The foundation conditions were such that natural foundations were permissible for all of the structures except the turntable and the coaling station which required pile foundations. The turntable center was heavily reinforced with a grillage of old rails and the entire turntable pit was paved with a concrete floor.

The building of the cut-off, which has a length of about 10,000 ft., involved the construction of two grade separation structures, an overhead highway viaduct to carry Twenty-third street, Oklahoma City, over the tracks, and a three-span subway to carry the cut-off over Alice avenue. Both of these are reinforced concrete structures which were built in place complete before traffic was turned over the line.

The entire project has been developed under the direction of F. Ringer, chief engineer of the Missouri, Kansas & Texas, assisted by J. M. Metcalf, principal assistant engineer, and A. L. Sparks, architect. D. I. Stevens, assistant engineer, was in direct charge of the construction. The roundhouse and other buildings were built under contract by H. D. McCoy of Cleburne, Texas. The List and Gifford Construction Company, Kansas City, had the contract for the grading.

Freight Car Loading

WASHINGTON, D. C.

THE volume of freight being handled by the railroads continues to show large increases from week to week, as indicated by the weekly car loading reports of the American Railway Association, Car Service Division. While the increase is, of course, seasonal, the car loading figures are now showing a closer approach to the record figures for last year than they have at any previous time during the year. For the week ending on October 1 the total car loading was 901,078 cars, an increase of 27,773 cars as compared with the week before. It was, however, 91,205 cars less than were loaded during the corresponding week of 1919.

Except for livestock, which showed a slight decrease, and ore, gains were reported in the loading of all classes of commodities as compared with the previous week, while, for the first time this year, loading of merchandise and miscellaneous freight, which includes manufactured products, eclipsed the total for the corresponding week of last year. Grain and grain products also exceeded both the corresponding weeks of the past two years but other commodities fell below last year.

Compared with the week before, the largest gain was made in the loading of merchandise and miscellaneous freight, which totaled 551,656 cars or a gain of 18,587 cars. This was also a gain of 1,619 cars over the total for the corresponding week in 1920. Loading of coal amounted to 178,005 cars which was an increase over the previous week of 6,531 cars. Grain and grain products totaled 57,075 cars, a gain of 5,227 cars in a week and 13,443 cars more than were loaded during the corresponding week last year. This also was 13,286 cars in excess of the total for the same week in 1919.

Forest products increased 764 cars to a total of 49,466 compared with 48,702 the week before while coke loadings were 5,615 cars, an increase of 669 cars compared with the previous week. Livestock loading fell off 65 cars, compared with the preceding week, the total being 32,868 cars, while ore dropped to 26,393 cars, a decrease of 3,940 cars within a week.

Increases as compared with the week before were shown in the loading of all commodities by districts but the central western and southwestern were the only districts to show increases over the corresponding week in 1920.

The following table prepared by the Car Service Division compares the car loading with the peak weeks of 1920 and 1919, showing that the loading for the week of October 1 was within 10 per cent of the highest loading during the last two years, while the grain loading was considerably higher. During the first six months of 1921 railroad freight traffic was about 23 per cent less than during the corresponding period of 1920.

	October 1, 1921. peak, 1921	As compared with October 1, 1920	Per cent	October 23, 1920. The peak, 1920	Per cent	September 25, 1919. The peak, 1919	Per cent
Grain and grain products	57,075	43,632	130.8	30,886	184.8	45,140	126.4
Live stock	32,868	33,383	98.5	34,971	94.0	35,555	92.4
Coal	178,005	209,898	84.8	229,043	77.7	218,746	81.4
Coke	5,615	14,790	38.0	16,898	33.2	9,628	58.3
Forest products	49,466	62,085	79.7	58,820	84.1	65,360	75.7
Ore	26,393	78,458	33.6	73,182	36.1	69,853	37.8
Merchandise, L.C.L. and miscellaneous	551,656	550,037	100.3	559,161	98.7	551,619	100.0
Total	901,078	992,283	90.8	1,010,961	89.1	995,901	90.5

A large further decrease in the number of surplus freight cars and in the number of cars in bad order was also reported by the Car Service Division. For the period from September 23 to October 1 the number of surplus cars was 172,420, a decrease of 28,733 in approximately a week. This included 42,093 surplus box cars, a reduction of 13,756 and 98,040 surplus coal cars, a reduction of 12,328. The number of freight cars in need of repairs on October 1 was 364,372, or 15.8 per cent, as compared with 16.3 per cent on September 15.

"Perfect Package Month"

THIS is the name of the country-wide campaign to promote good packing of freight which is to be conducted during November jointly by the American Railway Association, through its committee, and the American Railway Express Company; and elaborate preparations are being made.

In previous campaigns, the railroads have succeeded in getting large shippers to give better attention to their shipping methods, and the losses formerly entailed in the transportation business, due, in part, to poor packing, have been much reduced. By the "Perfect Package" drive, the carriers hope to reach the smaller shippers. This is the first campaign in which all of the carriers of the country have taken part. It will reach practically every shipper in the United States. At the larger places committees of employes of the transportation companies will handle the campaign and keep in touch with local shippers' associations.

Throughout the month of November, all shipments, freight and express, will be more carefully examined than usual, and suitable notations will be made on special "Exception Reports." These forms are issued separately for express and freight, the latter being on white paper and the express on pink.

The "exception reports" are made up so that the most common errors in packing or marking can be quickly checked up, with a minimum of handwriting. If, for example, the shipper's name is missing or old and confusing marks are found, an "exception" will be made and an "exception report" filled out by the employee making the examination.

These exception reports will be used only in connection with the outbound business from each point; incoming shipments will not undergo this special examination. The issuance of these reports will not delay the shipment.

The exception reports will be sent daily by each of the carriers, to shippers of the packages on which exceptions are made, and they can thus immediately take steps to correct the errors. At regular intervals the carriers will inform the local Chamber of Commerce or other traffic bodies, who act for shippers in the movement, regarding the number of exceptions made on the outbound business of that city, giving the names of the shippers. Exception reports will be regarded as confidential information, only for the shipper affected.

In each city the agents of the railroads and of the express company have been requested to get together and form a local Joint Perfect Package Campaign Committee. These will distribute printed matter, give notices to local newspapers and present the matter to the leading shippers' organization.

The carriers do not intend to throw any unnecessary burden on these local organizations or to ask them to make any expenditures, unless they wish to do so on their own volition. The shippers' associations will be asked to put up notices on their bulletin boards, publish articles about the campaign, and make announcements of it at their meetings. At the conclusion of the campaign, the carriers will notify the associations what the total number of outbound shipments by all carriers was during November. By comparing the total number of "exceptions" with the total outbound business during that month, the shipping "score" of local industries may be determined. The percentage attained will be publicly announced and information sent to the central joint campaign committee of the railroads and express companies. That committee will prepare a list that will show, for the whole country, the cities which make the best records. This list will be made public after the campaign is over and the cities heading the list will achieve such reputation as they deserve.

The "Perfect Package Month" activities are to be directed by a Joint Campaign Committee of the American Railway Association and the American Railway Express Company; and the representatives are: Lewis Pilcher, Secretary, Committee on Freight Claim Prevention, A. R. A., Chicago, and J. H. Butler, Manager, Loss and Damage Department, American Railway Express, New York.

Strike Talk Dies As Labor Leaders Count Ballots

Pennsylvania Cited for Failure to Obey Board's Order—New Adjustment Board for Western Roads

THE THREATS of a general railroad strike which were so indiscriminately thrown about several weeks ago have been abandoned by leaders of the railroad labor organizations who have been in Chicago for the past week, the consensus of opinion now being that the only difficulty which is even possible might be between the Pennsylvania shopmen, and members of the Federated Shop Crafts, employed by that road. One well known labor leader was recently quoted in the press as saying: "If a walkout should be ordered, half the workers affected would become 'scabs' and the other half would become tramps. There will be no strike because both the men and their leaders know it would be a foolhardy move. If the men vote to quit work it is merely to strengthen the hands of their officers in seeking concessions from the carriers. They trust their officers not to lead them into this winter's bread line." The name of the union leader quoted was withheld at his request. This leader was also quoted as stating that the strike votes already polled by the brotherhoods mean nothing and that, since W. G. Lee, president of the Brotherhood of Railway Trainmen, has announced that his organization will not strike unless the other brotherhoods join the movement, there will be no general walkout because the officers of these other organizations have the power to veto a strike vote.

L. E. Sheppard, president of the Order of Railway Conductors, later made the statement that there will be no extensive tie-up of the country's transportation facilities.

"I made this promise to President Harding," Mr. Sheppard was quoted as saying, "and I know of no reason why I should not give the same assurances to the public. If we have to break with the railroad officials we will do it with just as slight inconvenience to the public as possible."

Labor Board Favors Pennsylvania in Five Decisions

Five recent decisions of the Labor Board, although rendered in minor disputes involving in each case the claim of an individual employee, are significant in that the decision in each case is in favor of the Pennsylvania. Coming, as these decisions do, immediately after the publication of a great deal of information regarding the Pennsylvania's attitude toward the Labor Board and the Labor Board's attitude toward the Pennsylvania, the rulings may, according to the views of members of the Board, serve to establish the fact that, despite the discussion which has taken place in the last month, the Labor Board will continue to decide disputes which are properly certified to it free from prejudice because of developments in other controversies. It was pointed out at the same time that the Pennsylvania has likewise signified its approval of the Board's jurisdiction over and judgment in, controversies in which there is no question of jurisdiction or authority by recently certifying to the Board a case involving a wage reduction for dining car stewards in the eastern region of Pennsylvania.

A hearing to determine whether the Pennsylvania has violated the Transportation Act by its refusal to accept the decision of the Board ordering a new election of employees' representatives will be held within the next ten days, according to a recent announcement of the Board. The Board will proceed under Section 313 of the Transportation Act.

B. R. & P. Dispute Before Board

Threat of the train service brotherhoods and the Order of Railroad Telegraphers to call a strike on the Buffalo, Rochester & Pittsburgh unless that road incorporates in its working conditions a rule against trainmen having to receive train orders by telephone, was basis of a rather significant dispute heard by the Board on October 7.

The carriers' executives are unwilling to concede that "employees other than those covered by the telegraphers' agreement shall not be required to or permitted to handle train orders or messages pertaining to the movement of trains except in cases of wrecks, washouts, snow blockades, or personal injury."

T. F. Brennan, vice-president of the road, claimed that adoption of the rule would "nullify the advantage of the telephone over the telegraph from the standpoint of convenience, safety and the prompt movement of trains." He declares it would seriously interfere with train

operation, create misunderstandings and enforce the employment of operators where they are not needed now and never have been employed.

The unions claim that train service men have been required to receive and write out train orders while regular telegraphers were laid off, at the same time placing upon the train service men more responsibility without additional compensation and introducing another element of danger. They declare the operation of the rule would not prevent trainmen "getting block" or reporting "in clear" at points where operators are not maintained regularly for this particular purpose and where no other telegraph service is necessary or required.

Arrangements for New Board of Adjustment Completed

The new Board of Adjustment, created recently to handle disputes between certain western carriers and the train service brotherhoods and their members, is now fully organized and is making preparations to take up and dispose of the large number of grievances which have arisen since the end of Federal control.

W. E. Morse, formerly assistant general manager of the Chicago & North Western and more recently vice-president of the Denver & Salt Lake, was named a permanent member and chairman of the new body, which is composed of four representatives of the railroads and four representatives of the train service brotherhoods.

Other members of the board are: J. T. Gillick, general manager of the Chicago, Milwaukee & St. Paul, (Lines East); F. G. Pettibone, vice-president and general manager of the Gulf, Colorado & Santa Fe; Frank Bell, general manager of the Great Northern (Lines East); Harry Dougherty, vice-president of the Brotherhood of Locomotive Engineers; E. P. Curtis, vice-president of the Order of Railway Conductors; C. F. McLaughlin, vice-president of the Brotherhood of Locomotive Firemen and Enginemen, and A. F. Whitney, vice-president of the Brotherhood of Railroad Trainmen.

As soon as suitable office space can be found a permanent office will be opened in Chicago and the new board will go into continuous session until the accumulation of grievances of the "big four" against the member roads since Federal control has been disposed of. After that, meetings will be held at stated intervals.

The railroads which signed the agreement for one year are the Union Pacific, the Atchison, Topeka & Santa Fe, the Chicago, Burlington & Quincy, the Colorado & Southern, the Northern Pacific, the Illinois Central, the Chicago, Milwaukee & St. Paul and the Minneapolis, St. Paul & Sault Ste. Marie.

The board will confine its jurisdiction to the adjustment of "disputes growing out of personal grievances or out of the interpretation or application of the schedules, agreements or practices now or hereafter established on the railroads signatory hereto which cannot be adjusted by direct conference between the representatives of the individual railroad and its respective employees."

The agreement continues:

> All disputes arising out of proposed changes in rules, working conditions or rates of pay are specifically excluded from the jurisdiction of the board.
>
> The board shall not assess punishment or change the discipline administered. In the determination of disputes involving personal grievances the decision of the board shall be limited to the guilt or innocence of employees as charged.
>
> All decisions of the board shall be approved by a majority vote of the full membership of the board and shall be final and binding upon the parties to the dispute.
>
> If a dispute had been considered by the board, but a majority vote cannot be obtained, then upon the request of either party to the dispute, the board shall certify such dispute to the United States Railroad Labor Board for final decision, accompanied by all supporting papers.

On October 11 the Railroad Labor Board cited the Pennsylvania for failure to obey its order directing a new election of employees' representatives and ordered that further hearings be held beginning October 20.

Lehigh Valley Files Segregation Plan

THE LEHIGH VALLEY on October 6 filed with the United States District Court of New York a plan to segregate its coal properties in accordance with the decree of the United States Supreme Court, noted in the *Railway Age* of December 10, 1920, page 1030. The plan calls for no assessment from the stockholders and results in no sacrifice of their equity in the coal company investment. The government filed objections to the plan.

E. E. Loomis, president of the Lehigh Valley, outlined the segregation plan in the following statement:

"The stockholders of the Lehigh Valley Railroad Company are the owners not only of the railroad company itself but also, through the railroad company, of the entire capital stock of the Lehigh Valley Coal Company and of Coxe Brothers & Co., Inc.

"The Supreme Court of the United States, however, on December 6, 1920, declared that the railroad company must sever its control of the Lehigh Valley Coal Company and Coxe Bros. & Co., Inc., and the management of the company has devoted its best thoughts to finding a way to do this, and at the same time insuring full protection to the rights of all having an interest in the matter.

"On January 10, 1921, the boards of directors and officers of the railway company and the two coal mining companies were changed, eliminating all interlocking directors and officers. Each company now has a separate and distinct set of officers and board of directors, in accordance with the requirements of the decision of the Supreme Court.

"In considering its stockholders, the management recognizes a particular responsibility because of the fact that they are 19,122 in number, representing an average holding of 63 shares. Of its stockholders, also, 7,028 are women, and 615 are corporations of one character or another—banks, insurance companies, fiduciary concerns, charitable institutions, etc., with the funds or interests of thousands of persons partially invested in its stock. Also, 1,350 employees of the Lehigh Valley have placed their savings in the shares of the company, and are looking to the management to protect them.

"The management, in seeking a solution of this problem, has kept constantly in mind the necessity of complying fully with the letter and spirit of the decision of the Supreme Court and at the same time protecting the interests of its many small stockholders as well as those of the owners of bonds issued under the general consolidated mortgage. In other words, the management conceives it as its duty to see that the stockholders of the company shall receive full consideration and that the bondholders and their trustee are assured that the values subject to the mortgage lien are not impaired.

"To accomplish these results the management has offered the following plan:

"*First:* The Lehigh Valley Coal Company will issue $30,000,000 non-cumulative preferred stock (with no voting rights) of $100 par value per share, yielding dividends at the rate of 7 per cent. per annum, which will be turned over to the Lehigh Valley Railroad Company in the form of a stock dividend declared out of surplus. The $2,100,000 annual income from this preferred stock will be payable to the railroad company.

"Then, in order that the railroad company may completely dissociate itself from control of the coal company, in accordance with the court's order, it will convey all of its interests in the common stock to a trustee, which will then issue, at the

direction of the railroad, to the holders of the railroad company stock, 242,432 certificates of interest in the common stock of the coal company in the ratio of one certificate for every five shares of common or preferred railroad stock.

"These certificates of interest will be dividend-bearing, based on the dividends earned by the coal company on its common stock, and in addition will give their holders the same voting rights as if they actually held the coal company stock. The trustee, under the general consolidated mortgage, will give the new trustee a proxy, such as it has given the railroad in the past, enabling the new trustee to vote the stock as directed or authorized by the holders of the certificates of interest.

"These certificates of interest are evidences that, upon the maturity of the general consolidated mortgage and the release of the coal company stock pledged thereunder, the holders will be entitled to a pro rata distribution of the shares of the coal company stock.

"So far as the trustee under the general consolidated mortgage is concerned, the segregation makes no change in the value of the property subject to the mortgage lien.

"*Second:* The stock of Coxe Bros. & Co., Inc., will remain as at present until the maturity, in less than five years (February 1, 1926) of the collateral trust agreement under which it is pledged, except that the voting power in the meanwhile will be assigned to a trustee to be appointed by the United States District Court. After that time the stock is to be sold, the proceeds to go into the treasury of the Lehigh Valley Railroad Company.

"*Third:* The stock of the Delaware, Susquehanna & Schuylkill Railroad Company, owning a small branch line in the coal regions, which is also pledged under the collateral trust agreement, to be held until February 1, 1926, the maturity date of the agreement, and in the meanwhile application to be made to the Interstate Commerce Commission for authority to consolidate this line with the Lehigh Valley Railroad Company under the provision of the Interstate Commerce Act which permits the commission to allow consolidation of railroads notwithstanding the anti-trust laws. In the meanwhile, the voting power of this stock will be assigned to a trustee, as in the case of Coxe Bros. & Co., Inc.

"This plan leaves the Lehigh Valley Coal Sales Company in position to negotiate a new contract with the mining companies."

The government filed objection to the plan on the ground that the segregation plan does not contemplate the disposition of the stock of the coal company, or the railroad company's equity therein, to persons not connected with or interested in the railroad company. The doctrine laid down in the case of the Union Pacific and Southern Pacific segregation, to the effect that in dissolving combinations in violation of the Anti-Trust Act the parts into which the combination is divided shall be placed under independent ownership, management and control, has been followed in subsequent cases.

Bad Order Car Situation Presents Serious Problem*

Essential That Railway Equipment Should Be Sufficient to Take Care of Maximum Traffic

By M. J. Gormley
Chairman Car Service Division, American Railway Association

TODAY THERE IS NO actual shortage of transportation with the possible exception of perishable traffic, and no complaint about the movement of traffic of any kind. That this is the condition in the face of the fact that there were loaded on the railroads during the week ending September 24, 1921, 873,305 cars, which is 86.6 per cent of the cars loaded during the corresponding period of last year, is the very best indication that there has been a very remarkable improvement in the efficiency of the transportation machine. The maximum business of last year was during the week ending October 23, when 1,010,961 cars were loaded, and this exceeded any previous records of the railroads. The record of September 24 this year is only 13.6 per cent less than the peak week of last year when considered only from standpoint of cars loaded and not tonnage. During this week there was a heavy increase in the movement of grain and grain products over the same week of the previous year, but this unfortunately was offset by a greater decrease in coal, forest products, coke and ore. If we stop with the presentation of these facts it would appear that the freight service does not need a general building up, but this is only part of the story. We must face the following facts. There are in the country today 374,431 cars in bad order, divided into 183,486 box, 153,275 coal and 37,670 miscellaneous types. There are also 201,153 surplus cars; that is, cars for which there is no demand. This means that there is a total of 575,584 cars out of commission today, classed as surplus and bad order, or 24.6 per cent of the total ownership. In considering this, however, we must keep in mind that the bad order situation is always with us but to a less extent than it is at the present time. Considered from the standpoint of a liberal allowance, under present conditions there should not be an excess of 7 per cent of the freight cars of the country in bad order. There should be only about 160,886 cars in bad order, which means, if that were the condition, the number of cars now reported as surplus, or available in excess of the demand, would be 414,698.

The problem now before the railroads is to repair or rebuild the bad order cars that can be so treated, and to replace with new cars those that cannot be economically repaired or rebuilt and make other necessary additions to the equipment. These facts, with the further fact that there were in existence 27,048 less cars under date of July 1, 1921, than on July 1, 1920, gives you what might properly be termed a "bird's-eye view" of the car situation today.

The heavily decreased earnings, with the extremely high operating costs, have made it necessary for the railroads to curtail their maintenance expenditures to the lowest possible limit that would enable them to furnish good service. With an immediate prospect of a business increase, the carrying out of the proposed plan for funding of the indebtedness of the railroads to the government for capital expenditures will have the effect of providing funds for the rebuilding program of the railroads which are not available from any other source.

With this accomplished we believe the railroads could put in condition all cars that are awaiting repairs in excess of 7 per cent and thereby make available sufficient equipment

*Address before the Traffic Group, National Retail Dry Goods Association, Washington, D. C., on October 7, 1921.

to handle up to at least the past records of performance; but what concerns the railroads and the shippers today is the providing of facilities that will not only take care of business up to the maximum of the past but the possible maximum of the future, and unless the revenues of the railroads are sufficient to attract capital to that channel it follows to a certainty that commercial expansion of the country will be impossible.

I do not want to tire you with post mortems as I believe that now is the time to look forward and not backward, but post mortems are often performed to find out what caused the death of the patient in order that the knowledge gained thereby may be used in finding a cure for future cases. Our memories are very short in this country, but if you will recall, the railroad officers were for several years pointing to the people that unless there was an increase in their revenues they would be unable to expand to meet the growing transportation needs of the country. It is regrettable that they were able to convince only themselves of this fact. This is the real reason why a building up program of the railroads is now necessary and in progress.

By not obtaining sufficient net earnings the railroads will be unable to enlarge their facilities to provide for the movement of the possible maximum traffic of the future with a service equal to that rendered today. We maintain that the people of this country are always entitled to as good service as they are getting today and, if they will keep this in mind and not let the mistakes of the past be their guide post in the future, and insist on a constructive program for commercial expansion, we believe this service can be furnished and maintained. This brings to our minds the wholesale demand today for a decrease in the freight rates. A great many people apparently can only see this situation from the standpoint of rate reductions and they have the mistaken idea that the only way traffic can be stimulated is by reduction in the freight rates. I do not qualify as competent to discuss the freight rates but I do not think that any one needs to be an expert in that direction today to realize if he takes the time and the trouble to study the situation from every angle that the rate situation has but a very small bearing on the question of the traffic movement today. Without a doubt there are rates that are out of line but a great many modifications have been made in these rates and are being made daily. A glance at the freight loadings today I think will convince anyone who has an open mind that these are the facts. It has been shown that a decrease in the selling prices of commodities very many times in excess of any possible reduction in the freight rates has failed to move the traffic. In my opinion, and I would like it understood that this is my opinion only, the fact that there has been so great a clamor for freight rate reduction has had more to do with holding back the movement of traffic than any excessive freight rates.

I know there are some very well defined opinions that the railroads are unnecessarily losing short haul traffic to trucks, barges, etc., by reason of these high freight rates, but I maintain that if transportation can be provided by trucks or barges for short haul traffic more economically than can be provided by the steam lines then most certainly it should go to the cheaper lines of transportation provided they, like the railroads, are required to pay their proper part of the country's taxation expenses; and right at this point I call your attention to what I doubt if many of you know, and that is that the taxes paid by the transportation companies of this country amounted in the year 1920 to $278,868,668, an increase of $180,241,820 over 1911 or 183 per cent.

I think you all agree that the only time there is a general public clamor for a reduction in freight rates is at a time when business is moving in small volume and the service on the railroads the best. Without a doubt every one here will recall that at some time in the past three years you have said that what we need is service; the most expensive thing for us is low rates and poor service. This country has gone through in the past four years periods when the service was anything but satisfactory, due of course in a large measure to the war conditions but to other causes too numerous to mention today, but I would ask of any of you to answer your own question as to whether you would prefer seeing that the railroads obtain sufficient net earnings to provide the same service you are getting today, or would you prefer a lowering of the freight rates and what would consequently follow a blocking of the expansion of the transportation machine of this country?

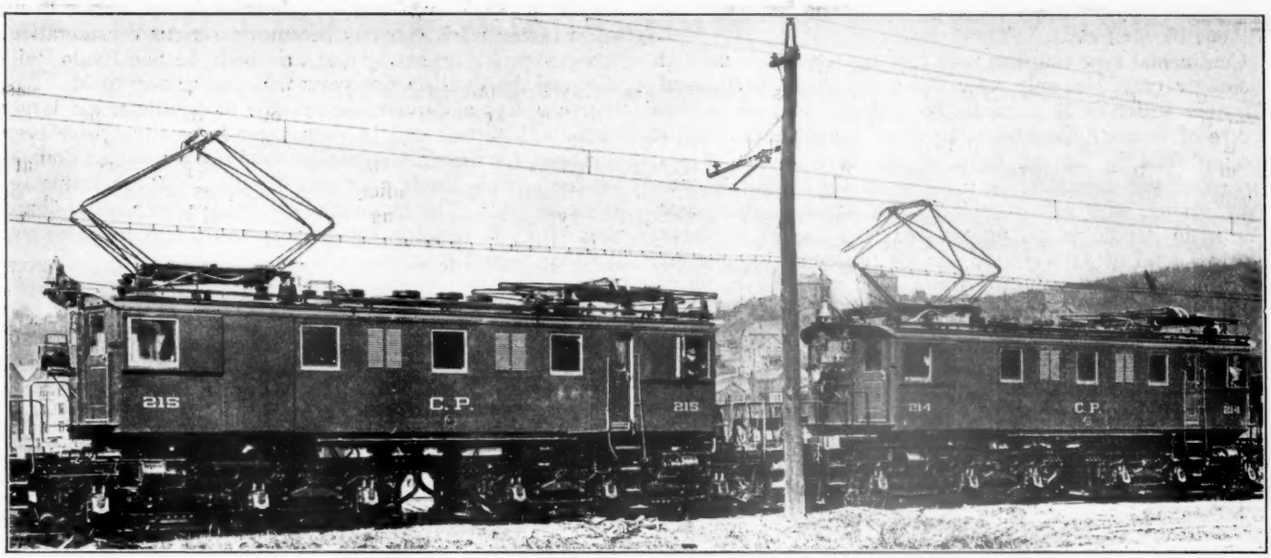
I have been fortunate enough to have spent nearly all of the last two years on the industrial side and I know there were times during that period when the answer to that question would have been—"The cheapest thing for the industry is that the railroads be maintained at a level that would attract capital to railroad investment and thereby expand the transportation machine so that it would be able at all times to move the maximum business with entire satisfaction."

We should never lose sight of the fact that to provide first class service at times of peak movement of traffic means that for certain seasons of the year there must be maintained a very great surplus capacity. Right at the present moment the energies of the railroads are being directed to moving the largest perishable traffic in their history, estimated to be 40 per cent in excess of last year, when it was considered that there was a very heavy movement; this must be made with no more refrigerator cars in service and, in fact I think a detailed check would show less cars in service than in previous years. In looking over these estimated figures I could not help recalling that the refrigerators now being used for that movement have been standing on the side tracks of the railroads of this country awaiting business for as long as five or six months. This surplus capacity can only be maintained at a very considerable expense.

I wonder how many of us today really realize that transportation is the right hand of industry. The lack of transportation today has more to do with famine in China and Russia than anything else. I assume you all know that in this country there are about 270,000 miles of main line tracks and if we include all of the sidings this mileage would reach 400,000. Transportation is the biggest industry in the United States and for a great many years the railroad development was very much ahead of the industrial development. The foresight of the railroad officers that made that possible in the past is just as great today as it was then and they will meet the situation and again bring railroad development to the point where it leads the industrial development if they are given a reasonably free hand where their incentive and initiative can be used to its fullest extent. Take away the initiative of an organization and you have undermined its foundation.

If your organization and other similar organizations and individual shippers will study this and view it from the standpoint of your own future interests, I am sure you will see that the transportation industry is given an opportunity to again resume its proper place in the commercial development of this country.

THE CHICAGO, BURLINGTON & QUINCY has presented to conductor William H. McGee, of the St. Joseph division, a gold watch and chain, in recognition of his capture of a robber on the night of September 10. Conductor McGee was in charge of southbound passenger train No. 16, near Parkville, Mo., 12 miles north of Kansas City, when the robber forced him down and bound him. McGee later cut the bonds from his hands and feet, secured a revolver from the mail car, disarmed the robber and finally turned him over to the proper authorities.

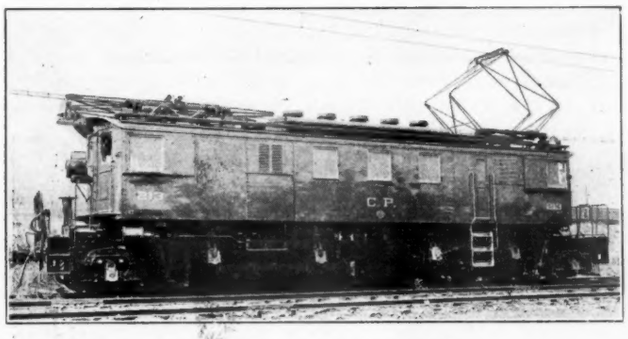


Two Baldwin-Westinghouse Electric Freight Locomotives for the Paulista Railway

Electric Motive Power for Paulista Railway

Two Freight and Two Passenger Locomotives Built for Brazilian Road by Westinghouse Company

A TOTAL of 16 electric locomotives, six for passenger and ten for freight service, were purchased in the United States for the Paulista Railway, Brazil. Two passenger and two freight locomotives were supplied by the Westinghouse Electric International Company and are described in this article. The remainder of the locomotives, consisting of two types manufactured by the General Electric Company,



Electric Passenger Locomotive

were described in the *Railway Age* of July 9, 1921, page 80, together with an outline of general conditions on the railroad and a description of other electrical apparatus.

Freight and Passenger Motor Parts Interchangeable*

The freight locomotives are of the six-axle type, with two six-wheel articulated trucks. There are six axle-mounted motors rating 280 h.p. each at the one-hour rating. The motors are wound for 1,500 volts for operation two in series on 3,000 volts and are arranged for field control. Each motor drives its axle by a single flexible gear.

The passenger locomotives included in this order have a 2-4-0 + 0-4-2 wheel arrangement and each driving axle is equipped with a 580 h.p., 3,000-volt twin motor and quill drive.

The passenger and freight train weights and schedule speeds are such as to require locomotive horsepower ratings in almost exact ratio of four to three, so that by using eight armatures on the passenger locomotive and six on the freight locomotive, it was possible to use the same identical motors in both services, except for the external frames. The passenger motors are in twin frames, while the freight motors are in axle and nose suspension frames, but the motors are identical electrically and all replacement parts, coils, complete armatures, field poles, brushes, armature bearings, etc., are interchangeable throughout. This is, of course, a tremendous operating advantage and is obtained without the sacrifice of fitness of type of each engine for its service. The freight locomotives operating at speeds up to 40 m.p.h. with comparatively light axle loads, have the mechanical simplicity inherent in axle-mounted motors and direct geared drive, while the passenger locomotives for speeds up to 65 m.p.h. have the advantages of high center of gravity and large proportion of spring-borne weight given by the quill drive.

Mechanical Construction

The frames are of solid slab steel with the openings drilled and burned out by torch. The brake rigging and equalizer parts are fitted with casehardened pins and bushings throughout, minimizing wear and facilitating replacement. The pedestal shoes are of bronze and the journal boxes are arranged for grease lubrication of the hub liners.

The control equipment has been worked out to give the greatest possible degree of simplicity consistent with good engineering and the proper degree of operating flexibility. All switches required to break heavy current are of the unit type mounted in two rows just below the main grid resistors. Motor combination circuits for motoring and regenerating are set up by cam switch groups and stabilizing resistor con-

*Abstract of an article on the Paulista Railway electrification by S. B. Cooper, general engineering department, Westinghouse Electric and Manufacturing Company.

nections for regeneration are made by smaller unit switches without blowout coils.

Continental type couplers with take-up screws are used on passenger cars, but only open links on freight equipment. For this reason it is particularly desirable to have a high degree of flexibility and smoothness in the control. This is accomplished by having three motor combinations of six, three and two armatures in a series on the freight locomotives, giving, with field control notches, six running speeds. The main handle on the master controller has 18 positions, giving a total of 54 notches. On the passenger locomotives, the armatures are connected eight, four and two in series, giving six running speeds and 54 notches.

Regeneration Provided For

Regeneration is provided for in all three combinations, with 13 notches in each combination, giving a particularly wide range of regenerating speeds, a most desirable feature with the various classes of trains and varying grade conditions existing on the Paulista.

The brake equipment consists of a combination of air and vacuum brakes. The space requirements for the cylinders made it impossible to use vacuum brakes on the locomotives, so they are equipped with air brakes. The control of the brakes is so arranged that air on the locomotive and vacuum brakes on the train is handled from a single valve with uniform rates of application and release. An independent straight air valve is provided for the separate control of the locomotive brakes as desired, thus making it possible to shut down the exhauster during light engine or switching movements.

Provision For Future Conditions

The auxiliary equipment is simply arranged; a single high voltage auxiliary motor-generator set furnishes power for control, lights, motor excitation during regeneration, and for the blowers, compressor and vacuum exhauster. The motors driving the exhauster and blowers are practically identical. The control and auxiliary equipment throughout is the same on the freight and passenger locomotives, excepting for such detailed differences as are required for the control of six and eight armatures respectively.

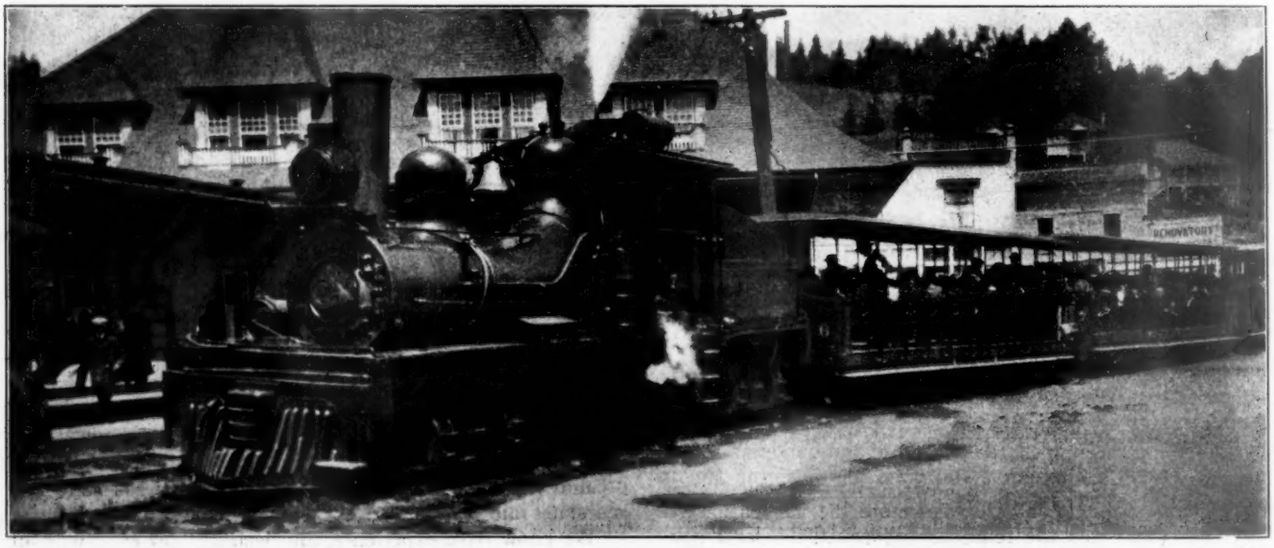
The traffic on the Paulista system is growing at a very healthy rate and even with double track it will not be many years before track capacity becomes a serious consideration. It seems probable that by that time both the Sao Paulo Railway and the Paulista Company will change over to M. C. B. type couplers and therefore be able to handle much larger trains. With this end in view, these locomotives have been equipped for multiple operation so that they can be double-headed with a single crew and handle 1,400-ton trains instead of 700. The bumper castings have been so designed that M. C. B. couplers can be very easily applied to replace the Continental type.

General Dimensions and Ratings

	Freight	Passenger
Wheel arrangement	0-6-0+0-6-0	2-4-0+0-4-2
Rigid wheelbase	14 ft. 0 in.	8 ft. 4 in.
Total wheelbase	37 ft. 0 in.	41 ft. 2 in.
Length over buffers	50 ft. 2 in.	52 ft. 11 in.
Total height over cab roof	12 ft. 7 in.	12 ft. 7 in.
Total height with trolley down	14 ft. 10 in.	14 ft. 10 in.
Diameter driving wheels	40 in.	63 in.
Total weight	234,000 lb.	282,000 lb.
Weight on drivers	234,000 lb.	206,000 lb.
Number of motors	6	4
Gear ratio	16:63	28:86
One hour rating, per motor	280 h.p.	560 h.p.
Locomotive ratings—short field:		
Horse power (one hour)	1,680	2,240
Tractive effort	29,400 lb.	19,400 lb.
Speed, m. p. h.	21.4	43.2
Horse power (continuous)	1,350	1,800
Tractive effort	21,600	14,300
Speed, m. p. h.	23.4	47.2
Tractive effort at 25% adhesion, lb.	58,500	51,000
Maximum safe speed, m. p. h.	40	65

The more important ratings and dimensions are shown in the table. Ratings are on the basis of the A. I. E. E. rules throughout, the continuous rating being based on 85 deg. C. rise by thermometer, or 105 deg. C. rise by resistance, thus giving conservative total temperatures with the high air temperatures encountered at certain seasons in Brazil.

The freight locomotives are now in Brazil ready for service, and the passenger locomotives have been completed and shipped from the works of the Westinghouse Electric and Manufacturing Company at East Pittsburgh, Pennsylvania.



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A Train on the Mt. Tamalpais & Muir Woods, California

Debate Federal versus State Regulatory Powers

State Utility Commissioners Question Extent of I. C. C. Authority Under Transportation Act

If the National Association of Railway and Utilities Commissioners was accustomed to formulate a theme for its annual meetings, it would probably have chosen for the convention held this week at the Georgian Terrace Hotel, Atlanta, something like the following: "The Attempt to Construe the Transportation Act to Mean the Transfer of State Jurisdiction Over Railroads to the Federal Government." This was the keynote of the meeting. One of the most important reports was that of the Committee on Litigation formed in September, 1920, to take action in the various cases before the Interstate Commerce Commission relative to the increase in intrastate to agree with interstate rates.

The convention, which began on the morning of October 11, was welcomed to Atlanta by Thomas W. Hardwick, governor of Georgia. In addition to the presentation and discussion of the committee reports, there were two round-table discussions, one on "After-the-War Phases of Regulation" and the other on the subject of "Automobile Transportation —Omnibus and Jitney." The convention was also addressed by James A. Perry of the Georgia Railroad Commission, president of the association, by John E. Burton, general solicitor of the association, who presented a report on the work of his office, and by Joseph B. Eastman, member of the Interstate Commerce Commission. The meeting opened with President Perry in the chair with 72 commissioners representing 31 states in attendance.

President's Address

Opposition in the strongest terms to a centralization in Washington, in the Interstate Commerce Commission, of control over all railroad rates, thereby destroying the power of the states to regulate their domestic commerce, was a distinguishing feature in the address of James A. Perry, of the Georgia Railroad Commission, President of the association.

The Transportation Act is being construed by the Interstate Commerce Commission in such a manner as practically to destroy the right of the states to regulate railroad rates and fares within their own borders, declared Mr. Perry, and a continuance of this interpretation of the act will amount to nothing less than complete abrogation of the fundamental principle of the sovereignty of the states as embodied in the federal constitution.

The Interstate Commerce Commission, Mr. Perry, contended, has construed the Transportation Act too much in the light of a revenue producing measure for the railroads, instead of in the light of an act to further regulate commerce. He called attention to the fact that the National Association of Railway and Utilities Commissioners some months ago appointed a committee to confer with the I. C. C. in an effort to work out a policy of harmonious co-operation, whereby the right of the states to prescribe intrastate rates would be preserved, but the conferences, he declared, "amounted to nothing, and nothing can be accomplished along this line so long as the Interstate Commerce Commission holds its present views."

The issue of states' rights, he pointed out, is now before the United States Supreme Court in the Wisconsin case and other cases, but he did not believe a satisfactory final solution of the issue could be obtained in that direction. Only by legislative action, in the form of amendments to the Transportation Act so as to re-establish clearly and indisputably the right of the states, can the issue be settled in his opinion, as expressed at the meeting. "If the present views of the Interstate Commerce Commission remain the law of the land," said Mr. Perry, "then we have suffered a most serious blow at our dual system of government."

Local self-government, he declared, is essential to the success of our political institutions in this country. One central body can never deal intelligently or satisfactorily with local conditions, he continued, and remarked that "the people had a taste under Secretary McAdoo of the nationalization of the railroads, and quickly grew sick of it."

He pointed out that the Interstate Commerce Commission's rule of procedure, where advances in rates are sought by the carriers, is to allow the carriers to file schedules of the proposed advances, and if the same are not objected to within 30 days they become effective; whereas, the practice of a majority of the state commissions is to require the carriers, when applying for rate advances, to justify them before they are authorized. "To require the carriers to go to Washington and justify every advance, whether interstate or intrastate," said Mr. Perry, "would speedily bankrupt the weak railroad lines, would stifle completely the expression of protest by affected communities, and would mean that communities seeking relief from unreasonably high rates would spend great sums of money and months of traveling back and forth to Washington."

Mr. Perry further contended that the "utter futility," as he called it of federal regulation was clearly demonstrated in *Ex Parte* 74, The I. C. C.; in that case he said, "applied a horizontal increase to all roads alike,—rich, poor, bankrupt, short and long—all were given the same increase. And notwithstanding that increase, giving the roads the highest rates in 35 years, they have lost money at a shocking rate. They are back before Congress at this time, appealing for financial help. Every known principle of rate-making was violated in *Ex Parte* 74. Without knowledge or inquiry as to whether the traffic would stand these undreamed of increases, the Commission granted them. The inevitable happened when the movement of various commodities to a large degree stopped. Millions of dollars worth of perishable farm products rotted in the fields with staggering losses to carriers and producers alike."

Commissioner Eastman's Address

Commissioner Joseph B. Eastman of the Interstate Commerce Commission in an address before the convention on Wednesday discussed the relations between the federal government and the state commissioners in the matter of interstate and intrastate rates.

"I feel confident," he said, "that you will all agree that a sound national policy calls for harmony between state and interstate rates.

"We know from experience, and would know even without experience, that the absence of such harmony can only be a source of complaint and confusion."

Continuing, he said:

In some parts of the country the state and the interstate rates are now on a reasonably consistent basis; in other parts they differ. In my judgment harmony will eventually be established all over the country. I am also convinced that if it is not attained with the aid of the states, it will in due time be brought about by the exercise of national authority. This may seem to you a rash prophecy and I hope there may never be occasion for proving its truth. I make it merely because harmony in rates is so clearly a matter of vital national interest that I believe its attainment sooner or later to be inevitable. I am just as thoroughly persuaded, however, that it will be most unfortunate if it cannot be accomplished with your assistance and co-operation.

Whether or not co-operation is possible does not depend upon the law, it seems to me, for the law already authorizes and definitely contemplates such a getting together. It really depends, like many other things in life, upon the good will and good sense of the individuals who are called upon to do the co-operating. If we in Washington are arbitrary or inconsiderate, for example, or if you are sensitive or short-sighted in your views of what you deem to be local interests, the difficulty will be very great. Now I assume that you will discuss our own errors and infirmities in this respect and keep us informed as to how we may mend our ways to advantage.

I realize that you may think this idle talk in view of our decisions during the past year in the various state cases. But the court has not spoken in those cases as yet, and they dealt with an issue which is not at all the same as the issue which I am now discussing. There it was a question of accomplishing uniformity of increase rather than harmony in rates and the two, as you know, may be very different things.

Coming back to the suggestions: First of all I suggest that it would be well to keep in mind continually the fact that you are dealing with a national railroad system whose operations are affected with a national interest, and that national policies, so far as important matters are concerned, are bound in the long run to prevail. This means mutual concessions and a spirit of give and take. No state can fairly expect to mould the national policy in complete accordance with its views, or to win 100 per cent of its contentions.

I suggest that you be long-suffering and patient in your dealings with us, because the inconsistency of state and interstate rates is only one of our troubles. Nor ought you to entertain the fear, which I understand exists in some quarters, that where inconsistency is present we always reach the conclusion that it is the state rate which is wrong. To use one of the favorite phrases in our reports, such fear is not justified by the record.

I suggest that it is well not to allow your energies to be wasted by exasperation with the carriers, and I make this suggestion because their attitude toward the state commissions in recent months has in some cases furnished cause for irritation.

I suggest that it may be possible for you to adjust differences among yourselves and take the initiative in bringing about harmony in state and interstate rates instead of waiting until the issue is thrust upon you. In this way you will gain the advantage of being positive rather than negative factors in the controversy. I realize that there may be many obstacles to such procedure of which I am not aware, but let me illustrate what I mean by the situation right here in the south. Probably there is no part of the country where there is more lack of consistency between the state and the interstate rates, and it seems to be very generally agreed that sooner or later this situation must be adjusted—at least, that is my impression of the general sentiment. Broadly speaking, the desirable thing is that the adjustment should be made with as little change as possible in the average level of rates, and such an adjustment is not easy of accomplishment. It occurs to me that if the state commissions of the south could get together and become the active proponents of a plan for bringing about harmony in rates within their territory they would stand on stronger ground than if the issue is brought to the front upon complaint of the carriers or upon our own initiative in Washington. And why should agreement between the states be impracticable? Surely no state wishes advantages at the expense of another. I feel confident, also, that the shippers of the south are not opposed to harmony in rates, but are only concerned that it shall not be made the excuse for a further increase in the general rate level.

The opportunities for co-operation between the federal commission and the state commissions are wellnigh unlimited. Many of the matters over which we now have jurisdiction often appear to have more of local than of national interest. It may be that we shall not always retain jurisdiction in all these cases, but so long as we do we need your help. Consider, for example, the jurisdiction over the construction of new lines and the abandonment of old lines. * * *

The field of regulation is so huge, in short, that whether our jurisdiction is enlarged, curtailed, or remains as it is, I cannot conceive of the time arriving when there will not be plenty of opportunity in railroad affairs for usefulness on the part of state commissions responsible to local authority and thoroughly in touch with local conditions. It is impossible, as I see it, to administer all these matters from Washington with any degree of satisfaction. But I caution you again to bear in mind that you are dealing with a national transportation system which must be guided in many respects by a national policy. And I further suggest that our duties are so numerous and our jurisdiction so wide that we may neglect at times the initiative in co-operation which you may think we ought to take, and that the burden of this initiative may appropriately be borne by you as well as by us. * * *

I think I can foresee tremendous possibilities in the development of our national transportation system. For example, there are the possibilities in the reconstruction and joint use of the terminal facilities of our great cities, a matter to which far too little constructive thought has been devoted; the possibilities in electrification and the economical production and use of power; the possibilities in the development of waterways and motor transport and their relation to and co-ordination with the rail systems; and the possibilities which go with the phrase economy and efficiency in management and concentration upon the details of operation which have so much importance in the mass. And aside from these possibilities, the country is continually growing and if the experts are to be believed, our national transportation system has not for some years kept pace with this growth and now falls far short of its proper capacity.

Now it is not difficult to list the essentials, if growth is to be normal and if the country is to reap the full measure of the possibilities which I have described. Clearly there must, first of all, be adequate inducement for the investment of capital. Billions of dollars will be needed. There must be harmony and co-operation between the managements of the great railroad companies. Manifestly, it will deadlock any well-rounded development of our national transportation system if each has thought only for its selfish advantage, however such a course may profit a few industries or a few localities. There must be opportunity for the executives, particularly the operating executives, to manage their properties without the strain of continual financial worry or of too frequent public attack and investigation. Initiative does not show to advantage in fetters. Finally, and above all, there must be co-operation between the managements and the employees, for no railroad can operate efficiently with labor which is disloyal or disheartened. But to list these essentials and to say how they shall be attained are different matters.

It occurs to me that railroad discussion in recent years has been on a painfully low level. I am not thinking of the ignorance and demagoguery which always enter into any public controversy, but of discussion from sources which are presumptively intelligent. Rather than being an earnest and constructive effort to seek the truth, it has too often, if my impression be correct, been largely an endeavor to shift the blame, in other words to find a "goat," an endeavor productive of nothing but rancor and bad blood. For a long time, in the minds of railroad operators and investors, the Interstate Commerce Commission was apparently the sole obstacle to progress and increases in railroad rates the sole panacea. We have heard less of this since Ex Parte 74, but no doubt our turn will come again and so will yours. More recently the vials of wrath have been emptied upon the Railroad Administration, upon labor, and more recently still upon the Railroad Labor Board. * * *

Safety of Railroad Operation

Following are abstracts of some of the committee reports presented at the meeting. Other reports and additional details concerning the other business of the convention will be given in next week's issue of the *Railway Age*.

The report of this committee, of which C. C. McChord of the Interstate Commerce Commission is chairman, dealt primarily with safety on interurban lines. The report said that "while much has been accomplished in the direction of safety, there has been a tendency to focus attention upon the larger steam lines, with a result that improvement on the smaller roads, particularly the interurban lines, has not kept pace with the larger steam systems."

"In nearly all instances," the report continued, "the interurban electric lines originated in street railways, doing an ordinary city street railway business. With the growth of cities and the rapid development of the surrounding country

they have gradually branched out and extended their lines into suburban territory, forming connecting links between towns and cities, until they have become important factors of the transportation system of the country and carry no small part of the nation's commerce. In their inception the interurban electric systems were comparatively small, their traffic was light, operating conditions were simple, and few, if any, operating rules were required. But with the development and extension of these systems there has been introduced more complex operating conditions and requirements, until they have approximated, if not equalled, those on the average steam railroad. In the meantime, however, there has not been adequate advancement or improvement in operating methods or practices. The result is that many such systems, practically trunk lines railroads, are today operating under primitive street railway rules and regulations, which constitute a serious menace to life and property."

The report instanced one road, a single track line, approximately 50 miles in length, over which there were operated during a daily period of 20 hours, 56 trains, but on which road none of the employees were furnished with time-tables. Train crews were required to secure such information as they might need from a time-table made with pen and ink and posted on the walls of the terminal station. Complaint was made of other roads that failed to have proper train dispatching. Some roads, it was maintained, lack adequate and safe operating rules and arrangements, while still others which may have elaborate codes are constantly menacing the lives of their patrons through failure to require the enforcement of such rules. Laxity of time regulations and the absence on many interurban lines of signal systems and other safety devices also came in for severe condemnation, as did the lack of care in the selection, training, etc., of train service employees.

The report is signed by C. C. McChord, I. C. C., chairman; G. E. Halderman (Colo.), E. C. Kash (Ky.), W. A. Dutton (Vt.), Geo. R. Edwards (Miss.), B. H. Cooper (Ala.), D. F. Johnson (Ariz.).

Grade Crossings and Trespassing on Railroads

The committee in its report said in part:

Of all careless travelers the automobilists are the worst offenders. The reckless things they will do are almost unbelievable. Their favorite pastime seems to be to race with a train in order to pass over the crossing just ahead of it. After frightening the engineer half out of his wits, causing him to blow the whistle and put on the emergency brakes, the automobilist, with a grin and wave of his hand, disappears in a cloud of dust. Of course, these cases are unusual but not so exceptional as they should be.

Reckless and Careless Automobilist Worst Offender

But beside the daredevil reckless driver we have the careless driver, who is either too lazy or indifferent to danger to slow down, and, not having his car under proper control, he stalls his engine upon the tracks of the railroad, or discovers the approaching train too late to stop before the train hits him. If it were not for the automobilist it might be said that grade crossings under the modern methods of protection are reasonably safe. Notice the word safe is qualified. It is recognized that no grade crossing is or can be made absolutely safe.

But to return to the automobilist, some means must be devised to make him slow down, or, still better, stop his car before passing over the railroad tracks. If this can be brought about the greatest danger at grade crossings will be eliminated. Various states have endeavored to do this by passing a law requiring all motorists when approaching a railroad crossing and at a certain distance therefrom to reduce the speed of his car to 5 or 10 miles an hour. The difficulty with this law is that it is difficult to enforce and is not observed. In a few states the operator is required to bring his car to a full stop before proceeding over the crossing. In other states a hummock or other defect is made in the roadway near the crossing so that automobiles for the comfort of the occupants and safety of its springs must slow down. This last method would seem objectionable in that it is creating a defect in the highway to the annoyance and inconvenience of everyone. It has not been adopted generally.

Severe Punishment Needed to Stop Reckless Driving

The law prescribing the speed of vehicles over railroad crossings and the precautions to be exercised by travelers should be enforced as far as possible in order to make them effective. A few stiff fines, short imprisonments and loss of licenses to operate a motor car will go a long way towards putting a stop to reckless automobile driving over railroad crossings.

While doubtless the last word has not been spoken upon protection at grade crossings, apparently the means and devices now in use if judiciously employed by installing at each crossing the type best adapted to protect that particular crossing seems to be about all that can be desired for the purpose for which they are intended.

But it has been demonstrated that, regardless of the kind or degree of protection, accidents will happen at grade crossings. This is well known and needs no argument to prove it. Some one may say that no one is under an obligation to protect a man from death or injury due to his own carelessness. Human life, however, is so precious that it is desirable to protect a man from death due to his own negligence and vastly more desirable to protect the lives of those who would be killed by his negligence.

State and Federal Legislation

The Committee on State and Federal Legislation reported that there had been no material change in the situation since the last meeting of the association. The report continued:

The last convention by resolution endorsed the bills then pending in both houses of Congress, to amend the Valuation Act, so as to relieve the Interstate Commerce Commission of the obligation in its valuation of railroad properties the estimated "present cost of condemnation and damages or of purchase of lands in excess of original cost or present value." Strenuous efforts were made to secure this amendment, but without results.

At this session new bills have been introduced in the House by Congressman Sweet, and in the Senate by Senator Cummins, and a favorable report has been made by the sub-committee of the Senate to the full committee.

At least a dozen state legislatures have passed resolutions demanding that congress amend the Esch-Cummins Act, so as to preserve to the states the regulation of their internal affairs. The American Farm Bureau Federation together with a number of other farm organizations and dozens of business associations have passed resolutions of the same nature. There is a popular feeling that this be done quickly in order to eliminate all litigation and prevent misunderstandings between the state and federal commissions.

The Interstate Commerce Commission has held that its jurisdiction extends to every rate charged by an interstate carrier, which after hearing it may find adversely affects interstate commerce, using the term "commerce" in a sense which covers "the entire field of transportation, the traffic itself and all the instrumentalities and means of carrying it on."

If these decisions are valid, then the Esch-Cummins Act, contrary to the declared intent of its authors, has extended federal control of intrastate rates to the point of destruction of state power of regulation, and has placed such control exclusively in the hands of a single overworked bureau in Washington, ill-informed as to local conditions, far from shippers, and available for relief only at such expense of time and money as practically to place it beyond the reach of complainants of ordinary means.

Bills have been introduced in the House by Congressman Sweet, of Iowa, H. R. 6861, and in the Senate by Senator Capper, of Kansas, S. 1150, which will clarify the situation.

We have had several meetings and conferences and have done everything possible to secure this amendment. The previous legislative committee was not satisfied with the provisions as to the power of the states in this act but was unable to secure any further concessions, and was told repeatedly, and has been assured since the enactment of the Esch-Cummins Act, that it was not the intention of congress to deprive the states of any of their prerogatives. Notwithstanding all this, we are obliged to establish our rights by the slow process of litigation, placing on the authorities of the state the burden of great expense, in order to preserve to themselves the right of state regulation.

Congress should immediately pass an amendment that will rectify the condition and will read so plainly that there will be no necessity for continued litigation and misunderstanding between state and federal authorities.

The report is signed by CHAS. WEBSTER, (Iowa), Chairman; J. W. RAISH, (S. D.); T. A. BROWNE, (Neb.); ALEXANDER FORWARD, (Va.); ERNEST D. LEWIS, (W. Va.); FRED W. PUTNAM, (Minn.); OLIVER C. SEMPLE, (N. Y. P. S. C.).

Litigation

The report of the Committee on Litigation included a detailed analysis of the several intrastate rate cases. It gave an outline of the efforts the committee and the association's general solicitor, John E. Burton, had made and were making in opposition to the Interstate Commerce Commission's decisions bringing intrastate rates up to the level of the interstate rates. "The year has been prolific," the report said, "of litigation begun to set aside intrastate rates. . . . To the extent that they have acted in such cases, the lower federal courts have without exception sustained the federal commission's orders. In most states the carriers have procured from such courts temporary injunctions restraining the state commissions and other state officials from taking any action to interfere with the putting into effect of advanced rates ordered by the federal commission. In every state the rates so ordered have taken effect. In no state, however, so far as we have knowledge, has a final order of a court sustaining the federal commission been entered."

The report follows in part:

The Committee on Litigation was created by a vote passed at a special meeting of commissioners held in Chicago on September 11, 1920, to consider what collective action the state commissions would take in the proceedings which had just before been instituted under the Transportation Act before the Interstate Commerce Commission to procure orders advancing intrastate rates in New York, Illinois, Wisconsin, and other states. The committee was authorized, by the vote creating it, to follow all litigation in which carriers might attempt to secure an interpretation of the Transportation Act diminishing the powers of the states to control intrastate rates and regulation of carriers; and to represent state commissions, granting authority therefor, in such proceedings.

The convention continued the existence of the committee by a vote as follows:

"That the president of this association be directed to appoint a committee of seven, to be known as the Committee on Litigation, said committee to act in all matters for the association wherein are involved the powers and rights of the several states to control the rates and regulations applicable to intrastate commerce; this committee to work with our general solicitor in representing the states in all such cases arising in the courts or before the Interstate Commerce Commission."

Effect of Federal Commission's Orders

The effect of the decisions of the Interstate Commerce Commission in the several intrastate rate cases, may be summarily stated as follows:

"The prohibition against 'undue, unreasonable, or unjust discrimination against interstate or foreign commerce' is not limited to particular persons or localities, but is applicable to such discrimination against interstate or foreign commerce in their broad definitions. (Illinois Passenger Fare Case, 59 I. C. C., 363.)

"The term 'commerce' covers the entire field of transportation—the traffic itself and all the instrumentalities and means of carrying it on. The language used is certainly broad enough to cover every discrimination growing out of the relation between intrastate and interstate commerce which injuriously affects the latter." (Illinois Passenger Fare Case, 59 I. C. C. 361.)

"If, without good reason, the fares within a state are lower than those authorized and established for interstate application, intrastate passenger traffic will not contribute its just share to the passenger revenues of the carriers, and the carriers may not earn the statutory return without further increases in the transportation charges on other traffic, including interstate commerce, thus unjustly discriminating against such commerce." (In the Matter of Intrastate Rates within the State of Illinois, 59 I. C. C., 365.)

Whenever a carrier believes that an intrastate rate is too low, from a revenue standpoint, it may apply in the first instance to the Federal commission for an order advancing the same, disregarding any state agency having jurisdiction over the rate under state laws. (Arkansas Rates and Fares, 59 I. C. C., 473; Nevada Rates, Fares and Charges, 60 I. C. C., 637; Arizona Rates, Fares and Charges, 61 I. C. C., 573.)

It is no defense in such a proceeding that the intrastate rates yield a fair return on the value of property devoted to intrastate transportation. The law does not contemplate any segregation of such property and consideration of earnings therefrom. (In the Matter of Intrastate Rates within the State of Illinois, 59 I. C. C., 364.)

It is no defense that the interstate and intrastate business taken together, in the state involved, yield the aggregate return contemplated by the Transportation Act upon the aggregate value of railroad property within such State. Section 15a, in its provision for group rates and aggregate returns, contemplates the disregard of state lines. (Nebraska Rates, Fares and Charges, 60 I. C. C., 312; and in the Matter of Intrastate Rates Within the State of Texas, 60 I. C. C., 426.)

In order that the commission may act quickly, when it deems carriers' need of increased revenue urgent, it may increase specified classes of rates by straight percentage increases, without examinaion of particular rates, leaving persons aggrieved to secure modification of the commission's order after it has become effective. (In the Matter of Rates, Fares and Charges of the New York Central Railroad Company and other Railroad Companies in the State of New York, 59 I. C. C., 294.)

In order that the Federal commission may exercise jurisdiction to advance intrastate rates on any commodity, as discriminatory against interstate commerce, it is not necessary that there be any interstate commerce in such commodity. In such case the Federal jurisdiction rests upon the loss in revenue suffered by the interstate carrier. (Louisiana decision on sugar cane rates, 60 I. C. C., 476.)

The question whether a rate or practice sought to be changed is "unjustly discriminatory against interstate commerce does not depend upon the amount of revenue involved," and the commission may accordingly advance intrastate rates prescribed by state authority, even when it is found that the advance will have "no very substantial effect upon the revenues of any one carrier," as in the case of the increase of minimum passenger fares in South Carolina. (60 I. C. C., 298.)

Furthermore, the commission has jurisdiction to impose charges with respect to intrastate traffic, in contravention of state law, which charges are not designed for direct revenue purposes, such as the conductor's cash penalty charge imposed in South Carolina. (60 I. C. C., 298.)

Paragraph (4) of section 13 of the Interstate Commerce Act, as amended by the Transportation Act, provides that any rate or practice ordered by the commission "shall be observed while in effect by the carriers parties to such proceedings affected thereby, the law of any state or the order of any state authority to the contrary notwithstanding." All orders of the commission thus far made, prescribing state rates, have provided that the same shall "remain in force until the further order of the commission."

Proceedings Have Related to Large Bodies of Rates

From the first the commission has proceeded under the Transportation Act, not upon investigation of particular rates, but with respect to large bodies of rates. In several instances the commission has advanced all of the freight rates within a state, and in other instances all of the passenger fares (with inconspicuous exceptions, such as commutation rates, too unimportant to mention) and that in some instances all rates within a state, both passenger and freight, have been advanced. This it has done, without examination of the rates increased, by the application of the same percentages of increase which were applied to interstate rates under the authority of the commission's decision in *Ex Parte* 74. The result has been that many situations were created where intrastate rates were so glaringly in excess of interstate rates that the carriers themselves desired to make adjustments. This they could not do without first securing a modification of the applicable order of the federal commission.

To remedy these situations, the federal commission designed a provision which, by amendment, or by original inclusion, has been a part of each order of the commission advancing intrastate rates, the same being as follows:

"*It is further ordered* that nothing in this order shall be construed as requiring any common carrier to establish, put in force or maintain any rate, fare or charge for the transportation of passengers or property in intrastate commerce which is greater than its corresponding rate, fare or charge applicable to the transportation of passengers or property in interstate commerce from, to or at the same points in effect on (the date of the order) or greater than its corresponding rate, fare or charge contemporaneously in effect and applicable to the transportation of passengers or property in interstate commerce."

Whatever may be the meaning of the peculiar language "from, to or at the same points in effect * * * or greater than its corresponding rate, fare or charge contemporaneously in effect and applicable to the transportation of passengers or property in interstate commerce," it is treated as permitting carriers to reduce the percentage of their intrastate advances, when they desire to do so, to avoid or remove maladjustments which would otherwise result from an order.

Reference has been made to this device as a necessary preliminary to a statement of the extreme length to which the federal commission has gone in its orders aimed to exempt carriers from the obligation to conform to state rates prescribed by state laws.

The Kansas Case

In the Kansas case it was shown affirmatively, upon the hearing before the federal commission, that without increases the Kansas freight rates were already, in large part, as high as interstate rates. Nevertheless, the *Ex Parte* 74 percentage advance was ordered, with the proviso in the order just quoted, under which it was said "difficulties of the kind referred to can be avoided." (Kansas Rates, Fares and Charges, 62 I. C. C., 448, 450.)

The effect of this order is that the federal commission, as to the entire body of Kansas intrastate freight rates, said to the carrier: "We find that these rates are in part lower than corresponding interstate rates. You may accordingly determine what rates are in fact lower than corresponding interstate rates, and may advance those rates such percentage as you may determine to be necessary to bring them to a parity with corresponding interstate rates, not, however, exceeding the percentage advance authorized as to interstate rates in *Ex Parte* 74."

In other words, the commission in effect authorized the Kansas carriers to determine what intrastate rates in Kansas were discriminatory, and to advance the same by such a percentage as such carriers determined to be necessary to remove the discrimination.

It is difficult to conceive of the more complete destruction of state power of regulation than is represented by these several orders of the commission to which we have referred, if those orders are valid.

It should be noted that from these orders (with the exception of the Chicago, North Shore & Milwaukee case) Commissioner Eastman has dissented. In the Kansas case the newly appointed commissioners, Campbell and Lewis, also dissented, the first upon the ground that the federal commission has no jurisdiction under the Transportation Act to review the reasonableness of State rates, and the latter upon the ground that the fact of discrimination must be found by the commission itself before it can properly make an order advancing an intrastate rate.

Appearances Before Federal Commission

Acting under the authority of the vote of the last convention, heretofore set out in this report, this committee directed the appearance of the general solicitor in cases pending before the federal commission "involving the power and rights of the several states to control the rates and regulations applicable to intrastate commerce." He accordingly appeared in the several cases mentioned, and from time to time made arguments, as new questions, not before passed upon by the commission, were presented in any case.

The validity of the several orders mentioned is being contested in most if not in all of the States affected. In New York, Ohio, Nebraska, Michigan, Montana and Utah attempts were made in the State courts to enjoin the carriers from putting into effect rates in excess of those authorized by State laws, but the State courts appealed to refused to exercise jurisdiction. In some cases temporary injunctions were obtained, but these were without exception later dissolved. The States were accordingly left to protect their rights in the federal courts.

The State of North Dakota instituted an original action in the United States Supreme Court. The Wisconsin, New York, Minnesota and Illinois cases have already reached that court. All other cases are still pending in the lower federal courts.

Appearances in Court

It obviously was impracticable for your committee to attempt to provide intervention on behalf of the state commissions in these several suits in the lower federal courts. In the first and only case thus far argued in the United States Supreme Court the committee did instruct the general solicitor to appear on behalf of all state commissions desiring appearance to be made on their behalf. A brief was filed, which has been distributed to all the commissions.

This brief was a revision and extension of the brief which was filed before the Interstate Commerce Commission in the New York and Illinois cases, involving the same questions as are involved in the Wisconsin case, covering which report was made by this committee at the last convention.

In the brief in the Wisconsin case in the United States Supreme Court the general solicitor joined 42 state commissions. In filing the same he was also joined by the attorneys general, or rate counsel, of all the states but one affected by the advanced rate orders of the federal commission made prior to the date of the filing of said brief. In all 43 states were thus represented on the brief.

The states that thus appeared necessarily did so *amici curiae*. Under an established practice of the United States Supreme Court, *amici curiae* are not permitted to be heard in oral argument. In only a very few instances in the history of the court has the rule been relaxed. Upon a motion filed by the general solicitor, however, setting forth the interest of the forty-three states represented, leave was granted for the appearance of a single counsel to represent said States upon the argument. Two hours' time was allowed for the purpose. The argument was made by the general solicitor.

This case was argued on March 11, resumed on the 14th and concluded on the 15th, and is yet undecided.

A very important and interesting case now pending in the United States Supreme Court is that of the State of Texas against the Interstate Commerce Commission and the Labor Board, which is an original action brought to test the validity of various provisions of the Transportation Act. The New York, Illinois and Minnesota cases, as has been stated, are also pending in the same court, and it is probable that several other cases of like nature will reach that court and be argued during the coming year.

It is not to be expected that the decision in the Wisconsin case will determine all questions involving the rights of states as to regulation of intrastate commerce under the Transportation Act. While it will not be practicable, and probably will not be desirable, that appearance be made on behalf of state commissions generally in all such cases, it doubtless will be desirable to have such appearance made in some of them. New cases involving state power of regulation will also undoubtedly arise before the federal commission, in which the state commissions should be represented.

Conclusion

It is accordingly the recommendation of this committee that the same be continued for another year, the membership to be appointed by the president, with the same responsibility and authority as was provided in the vote passed at the last convention.

The principal assistance given to our general solicitor has been through commerce counsels of the various commissions and attorney generals of the various states. The real work of this committee has been carried on by our general solicitor. The committee believes that this work should be continued and that a committee should be appointed by the president for the ensuing year to give such assistance to our general solicitor as is possible.

The report is signed by FRED W. PUTNAM, (Minn.) chairman; DWIGHT N. LEWIS, (Iowa); W. D. B. AINEY, (Pa.); ALLISON MAYFIELD, (Tex.); JOHN F. O'RYAN, (N. Y.); JNO. A. KURTY, (Mo.); R. HUDSON BURR, (Fla.).

The following officers were elected by the association for the ensuing year: President, Carl D. Jackson, of the Wisconsin; first vice-president, Dwight N. Lewis, of Iowa; second vice-president, Alexander Forward, of Virginia; secretary, Leroy S. Boyd, of New York.

Why Are American Bridges Heavier Than European?*

By Dr. P. H. Chen

Engineer of Construction, Tientsin-Pukow Line, Chinese Government Railways, Tientsin, China

I HAVE BEEN GREATLY interested in studying the specifications and standards of different countries. The more I study the worse becomes the puzzle. The principal points of perplexity are those which affect the strength and rigidity of railroad structures.

The allowable unit stress in continental Europe seems to be high. Many people think that Europeans do not take impact into consideration while others believe that impact is already covered by the allowable unit stresses. I take live load, dead load and impact into consideration in analyzing the European allowable unit stresses and find the difference in short spans about 40 per cent to 60 per cent higher than in American practice. The low unit stress used by Europeans, therefore, is not enough to cover American impact formulæ, especially in short spans.

Some people think Europeans use steels of better quality.

*Abstract of paper and subsequent discussion presented before the annual meeting of the Association of Chinese and American Engineers, Peking, China, April 6, 1921.

They specify higher minimum ultimate stress for structural steel. It appears to me that it largely depends upon the value of impact. If the American impact formula is right, naturally softer steel is preferable. Otherwise, high carbon steel may be used to advantage. Americans also use high carbon steel for long span bridges where impact is small.

I am greatly surprised at the difference in top chord bracings. For comparison I have chosen two bridges, actually in service, with the same span length and designed for almost the same live loads. The European bridge seems to be weak and to lack rigidity. It is braced on top with only one 3-in. by 3-in. by ⅜-in. angle without cross struts, while the American bridge is braced with two heavy struts, web system and corner brackets. The American bridge has greater truss depth, and both on top and at the bottom there are rigid connections. The European bridge seems weak and slender while the American bridge looks stiff and rigid. Undoubtedly Americans use a great deal more metal for bridges of the same span length with identical live loads.

The reasons for such a wide difference in standards and specifications should be thoroughly investigated. The American impact formula is certainly correct, as it is obtained by stress measurements and the result has been carefully checked by a great number of well known engineers. The allowable unit stresses in European practice must also be correct, because Europeans also have measured the actual stresses in bridge members. I wish to bring out three questions for discussion:

(1) If American practice is correct, how can European bridges stand long service without signs of failure?

(2) If European practice is correct, why should Americans waste so much money in building heavy structures?

(3) If different conditions require different standards and specifications, what should ours be in order to secure economical and reliable structures?

Comments by Dr. J. A. L. Waddell

Whether "the allowable unit stress in Continental Europe" is high or low, it is impossible to cover the effects of impact "by the said allowable unit stress." Impact is a real stress, varying mainly with the span-length but also somewhat with other conditions, such as character of superstructure, type of substructure, kind of rolling stock, and velocity of train; and its greatest probable amounts must be provided for in scientific bridge designing. This cannot be done by changing the intensities of the working stresses for various span-lengths and different bridge-members, but the matter must be treated by considering impact stresses as increments to the live-load stresses, as is now the custom in America.

Dr. Chen has shown that, when impact is duly considered, the intensities of working stresses employed in Europe are higher than those used in America. In the old days, "the boot was on the other leg," American bridges being much lighter than those designed by European (especially English) engineers. While the science of bridge design has been developing in America, the bridges there have been increasing in weight even more rapidly than the moving loads have augmented; for it has required a liberal use of metal to correct the old faulty details and to provide adequate rigidity for the checking of all unnecessary and avoidable vibration.

Dr. Chen may well be surprised at "the difference in top-chord bracings," for the European bracing he describes is almost unbelievable in its crudeness and inefficiency. The function of such bracing is to hold the top chords to place and line and to permit the legitimate assumption of the panel length as l in the ratio of l over r in strut formulæ. The lateral bracing serves an exceedingly important function in bridge designing; and any attempt to reduce its effectiveness by cutting down its weight is reprehensible.

Dr. Chen admits that the American impact formula is correct—it certainly is; for some of the best brains in the engineering profession have been devoted to its establishment, and the methods employed thereon have been practical—not theoretical. Dr. Chen says "The allowable unit stresses in European practice must also be correct, because Europeans also have measured the actual stresses in bridge members." To this I cannot agree, for when results differ so materially, one side only can be right—and it is acknowledged that the European impact—experiments have been quite meagre as compared with those made in America.

Dr. Chen asks three pertinent questions; and I shall answer them to the best of my ability.

(1) "If American practice is correct, how can European bridges stand long service without signs of failure?" Do they so stand it? Take, for instance, the bridges of European design on the Chinese railroads, built not so very long ago. I am told that they are nearly all so fundamentally weak that their immediate removal and replacement are a necessity. It is true that, the world over, bridges of inferior design can often be used without disaster for long periods. This is because of the so-called "factor of safety" employed in their designing; but that is no reason for building any more structures like them. There have been many badly designed bridges built and operated in America, but they are rapidly being removed, and either discarded *in toto* or employed on branch lines where the rolling stock is light.

(2) "If European practice is correct, why should Americans waste so much money in building heavy structures?" Without stating whether European practice is right or wrong, I beg to maintain most positively that American bridge designers rarely waste money by making their structures unnecessarily heavy. Experience has taught them what the traffic truly requires; and they provide enough metal to meet the demand—but no more.

(3) "If different conditions require different standards and different specifications, what should ours be in order to secure economical and reliable structures?" I would suggest that the true science of bridge design has been developed mainly in America; that there the old practice of building light, flimsy, and vibratory structures has slowly and gradually been changed to constructing stiffer and still stiffer ones; and that the modern American bridge if properly cared for, will last for centuries, unless excessively overloaded. Such being the case, what better can Chinese engineers do than to study American bridge practice, adopt standard American bridge specifications, and employ live loads so large that, in all probability, they will not be exceeded for at least a quarter of a century?

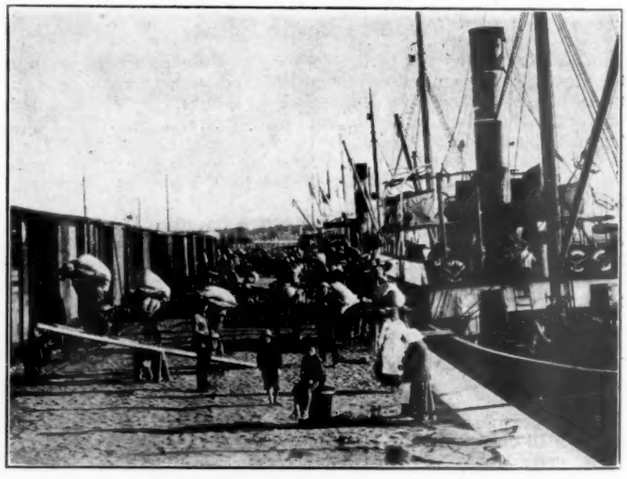
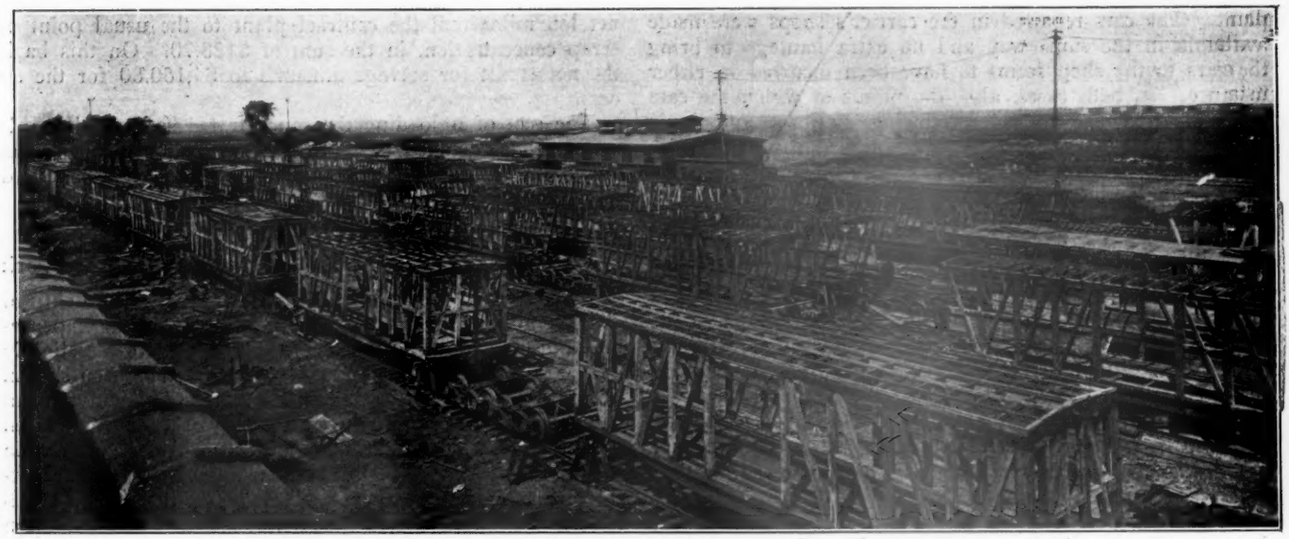


Photo by Underwood & Underwood, N. Y.

Unloading American Supplies at Riga, Russia



The Cost of Contract vs. Railway Shop Repairs

Total Cost to the Railroad Was 28 Per Cent Greater in Its Own Shop Than in a Contract Shop

By J. W. Roberts
President, Roberts-Pettijohn-Wood Corporation, Chicago

[*Following the computation of the total cost of repairing 50 box cars in a railroad shop arrived at in the preceding article, the author in this, the concluding article, develops the cost to the roads of similar repairs made in a contract shop, and compares the cost under the two sets of conditions.—Editor.*]

THE TOTAL COST of the work performed in the outside shop is in four subdivisions:

1—Direct costs as billed by the contractor, covering materials supplied by him, or purchased from the railroad at agreed prices and rebilled at the same prices, including labor, overhead, and profit, in accordance with the terms of the contract.

2—So-called "free" materials, supplied by the railroad at its own expense, and not covered by the contractor's bill.

3—Expenses incident to having the work done in an outside shop, which were borne by the carrier.

4—The credit for the salvage value of usable materials and scrap recovered from the cars repaired by the contractor, inclusive of the expense incident to concentrating the same for reclamation, or disposal, according to the practice with regard to the scrap recovered in the carrier's own shop.

These items are considered in the order named.

Direct Costs as Billed by the Contractor

The contractor was required to render a detailed bill of charges for each car repaired. The gross amount of the bills rendered on the fifty cars selected at random, which were audited and paid by the carrier, was $47,885.69.

As a matter of interest, and not because it has any direct bearing on the matter of cost to the carrier of outside work as herein developed, it might be said that the carrier operates a line of railway which is so situated as to compete, and doubtless with marked success, for tonnage moving from raw material markets to the contractor's plant. To the extent, therefore, that materials furnished by the contractor and billed against the carrier may have moved over its own rails, there was presumably an element of profit in the rates charged for transporting such materials.

Free Materials Supplied by the Carrier

Under the terms of the contract certain materials to be used by the contractor in the car repairs were to be furnished without charge by the carrier, delivered at the contractor's works. This material consisted of car roofs, draft arms, door fixtures, draft gear and steel car ends. The cost of such materials applied to the 50 cars, delivered to the carrier's own rails, was ascertained from the purchase records as $18,017.00. The cost of hauling it over the carrier's own line to delivery at the car plant, computed at 7 mills per net ton mile, amounted to $387.00, making the total cost to the carrier for "free" materials $18,404.00.

Except for isolated cases where car-load lots of these materials were moved via the general storehouse to accommodate the immediate needs of the carrier shops, and of other contractors repairing the same class of cars elsewhere, the free material moved direct in car-load lots, and was not subject to storehouse handling. The cost of purchasing and accounting for it is included in general expense apportioned to the contract cars the same as company repaired cars.

Incidental Expenses Borne by the Carrier

The charges absorbed by the carrier for switching cars to and from the plant of the contractor amount to $7.00 a car, or a total of $350.00.

The cars repaired at the contractor's plant, which is located at an intermediate point on the carrier's system of railroad, were not apparently given any special movement to make them available for repairs. It was said that the cars were selected from those moving through or made empty at the terminal at which the repair plant is located, and the only expense involved was the switching to and from the

plant. The cars repaired in the carrier's shops were made available in the same way and no extra haulage to bring the cars to the shop seems to have been incurred in either instance. In both cases, also, the points at which the cars were repaired are tonnage-producing stations, and it is claimed that when the cars were repaired and released they were simply contributed to the local supply of cars ready for loading and that special movements to loading points were unnecessary.

In this connection it is proper to remark that the contract costs have apparently been burdened with all the switching expense incident thereto. The railroad shop costs have been burdened with switching expense only to the extent that switching was performed by the shop yard engine. In addition to this, however, it appears that shop fuel was switched to the railroad shop by regular yard engines, as were also the materials used in repairs, which were drawn from the general storehouse stock. It was not practicable to identify such expense, of course, and rather than estimate it, it has been omitted.

The carrier stationed car inspectors and accountants at the contract shops to pass on the quality of work and to verify the charges of the contractor. This expense reached its peak during the inception of the work, when the plan of procedure had to be worked out and the preparatory work done. It tapered off as the work progressed. The work under the contract not having been wholly finished when this examination was made it was necessary to estimate the additional amount necessary to be spent in connection with the cars unfinished. The average cost per car of inspection and accounting at the contract plant was thus found to be $16.00 per car, or equivalent to $800.00 for the fifty test cars. This sum of $800.00 is not properly to be considered as an addition to the other costs enumerated, however, because the expense was charged to overhead accounts, which have of necessity been apportioned in total, and the test cars are elsewhere assigned with their pro rata share of the total expense. Because similar expenses of which no record was available had been coincidently incurred in connection with other repair contracts, and the overhead accounts carried still other elements of indirect expense which could not be specially assigned, it was necessary as a matter of equity to treat with the total of such accounts in an arbitrary way. To have assigned the $16.00 per car to the contract cars, deducting the sum from the overhead expense and apportioning the remainder would have charged the test cars with one hundred per cent of their own expenses and a part of expense attributable to other enterprises, which would have been unfair and misleading.

To the same extent as though the expense had been incurred in the carrier's own shop, it is considered that railroad general expenses representing administrative and supervisory expense, purchasing, accounting and similar items of a general character are applicable to the costs attaching to the outside contract. To the accumulated direct and incidental costs there has been applied, therefore, the same percentage (3.473 per cent) applied to the carrier's shop costs, resulting in the sum of $2,314.60.

Salvage Credit for Materials and Scrap Recovered

The contract covered the bases on which scrap and usable materials recovered were to be accounted for. Averaged to a per car basis for the 50 test cars, the current price new of recovered material was $108.40 per car; taken at 75 per cent. of the cost new this equals $81.30. There was recovered an average of 892 lbs. of miscellaneous scrap per car, at $15.00 per ton, or $6.69. From the total salvage per car of $87.99 is deductable the cost of handling as charged under the contract, plus 10 per cent. for profit, or $2.20 per car, leaving the net salvage credit as $85.79 per car. The net weight of the usable material and scrap was used as the basis for computing the cost of hauling by the carrier at 7 mills per net ton mile from the contract plant to the usual point of scrap concentration, in the sum of $128.70. On this basis the net credit for salvage amounts to $4,160.80 for the 50 cars.

The cost of unloading the concentrated scrap and usable materials is included in the carrier's storehouse expense, in which the materials handled for both jobs have been caused to participate on an equitable basis.

Relation of Carrier's Own Fixed Charges to Outside Work

It has been previously shown that the ratio of fixed charges to the carrier's expenditures for operating expenses and additions and betterments for the year 1920 was slightly over 20 cents per dollar of expenditure. It has been shown, also, that insofar as it could be traced no idle investment resulted and no non-productive time was spent by reason of letting certain work to outside shops. A fair proportion of general expense has already been apportioned to the outside work, and that expense is foreign to this topic. It is not clear to what extent, if any, the costs attendant upon contract work should be increased because of interest, taxes, operating losses, etc., which are pertinent to the carrier's operations. The ratio of such outgo to operating expenses does not exclude, because of lack of information, the total sums paid for work done in outside shops. But the aggregate of such expense, if known, would doubtless be of such small moment as compared with the total expenditure as not to affect the percentage.

It seems best to leave this question to the judgment of the reader, with the statement that by using the same factor of 20.0809 per cent the amount of fixed charges assessable against the accumulated costs of the contract work would be $13,846.64. While it might not be wholly fair to say that no portion of this amount should be reckoned as a part of the costs in question, it is quite obvious that under the circumstances it would be unfair to say that the entire amount should be considered as a part of such costs. If this were done the comparison would be on the basis, substantially, that the railroad shops were in disuse.

Summary and Conclusions

While it is most difficult to obtain a true comparison in an instance of this kind, it is felt that the one hereinafter made is eminently fair to the railroad costs. A greater refinement in distribution and a recognition of elements which could not be computed would doubtless have increased them appreciably.

A comparison of total cost follows:

	Contract costs	Railroad costs	Ratio of railroad to contract costs, Per cent
Applied materials, etc.	$41,462.58	$42,240.89	102
Direct labor	7,786.19	13,353.91	171
Contract overhead and profit	13,230.12	12,914.89	98
Railroad overhead	.....		83*
Railroad general expense on contracts	2,314.60		
Total	$64,793.49	$68,509.69	106
Interest, taxes and other fixed charges	.....	14,640.82	..
Total	$64,793.49	$83,150.51	128

*Railroad overhead is 83 per cent of the total of contract overhead and profit plus railroad general expense on contract.

The 28 per cent increase of railroad costs over the contract costs in this particular case, which is found as the result of comparing totals, partakes of none of the uncertainties which obtain when an attempt is made to compare overhead ratios to direct labor, etc., which introduces the dissimilarities found in the bases of direct labor, and of overhead, in the different cases. It has not been possible to analyze the contractor's costs and harmonize these factors in order to afford a true comparison with respect to them. Statements of the elemental costs in the two cases, however, are shown in the two accompanying tables, based on the findings in the railroad's case and classifying accordingly the information

shown upon the bills in the case of the contract. The ratio of different classes of expense to direct labor is given in each case, but in considering them comparatively it must be recognized that if the bases are different a comparison of the ratios is of no avail.

ANALYSIS OF THE COST OF THE CONTRACT WORK

		Relation to direct labor Per cent
Applied materials:		
Applied materials as billed	$27,219.38	
"Free" materials, at cost to carrier	18,017.00	
Haulage over carrier's rails	387.00	
Less net value of salvage recovered....Cr.	4,160.80	
	$41,462.58	
Direct labor:		
Piece work labor, on equated base	$6,590.34	
Blacksmith labor	428.21	
Milling lumber	767.64	
	$7,786.19	
Overhead expense and contractor's profit:		
Labor delivering materials as billed*	$300.00	
Overhead surcharge as billed	$8,086.19	
Contractor's profit as billed	$4,493.93	
Cost of switching, borne by carrier	350.00	
Total	$13,230.12	169.91
Add proportion of carrier's general expense	2,314.60	29.73
Total overhead expense	$15,544.72	199.64
Total cost to carrier, exclusive of any proportion of its fixed charges	$64,793.49	
Apportionment of fixed charges on same basis applied to carrier's costs of work done in its own shops	13,846.64	177.84

ANALYSIS OF THE COST OF WORK IN CARRIER'S OWN SHOPS

		Relation to direct labor Per cent
Applied materials:		
All applied materials, prime cost	$45,158.96	
Haulage over the carrier's rails	1,481.43	
Less net value of salvage recovered....Cr.	4,399.50	
	$42,240.89	
Direct labor:		
All classes of direct labor	$13,353.91	
Overhead expenses:		
Indirect labor, current	$4,395.31	
Shop expense, current	2,383.31	
Insurance on buildings and machinery	13.23	
Maintenance of machinery and tools, direct charges	1,317.07	
Maintenance of buildings and tracks, direct charges	235.89	
Proportion of maintenance of buildings common to this and other shops	57.91	
Proportion of divisional overhead expense on maintenance of way and structure	6.27	
Proportion of "entire line" overhead expense on maintenance of way and structures	14.79	
Proportion of maintenance of equipment overhead expense	1,720.22	
Proportion of cost of maintenance of general office and storehouse buildings	2.36	
Proportion of "system" general expense	2,436.20	
Accrued depreciation on shop buildings and depreciable machinery and tools	332.33	
Total operating overhead	$12,914.89	96.71
Proportion of fixed charges for interest, taxes, etc.	14,640.82	109.64
Total of all overhead expense	$27,555.71	206.35
Total cost to the carrier	$83,150.51	

*This item has been included in the overhead charges in order that the total may be comparable with the total operating overhead charged against the work done in the railroad shop.

The average cost per car repaired in the carrier's shops is $1,663.01; the aggregate cost in the outside shop is $1,295.87, including no part of the carrier's fixed charges, and $1,572.80 if fixed charges be included in the same proportion as in the case of the carrier's work. The carrier's work, therefore, cost, in the first instance, $367.14 per car, and in the latter instance $90.21 per car, more than the work done in the contract shop.

In conclusion, attention should be drawn to the fact that of the costs pertaining to the work done by the carrier's shop, only direct labor, shop expense and applied material costs to the extent of $64,873.31 were identified in connection with the work in the carrier's accounts. The remainder, $18,277.20, was charged to other accounts, or not accounted for at all. In other words, of the total costs to the carrier as herein developed, 78 per cent could be identified and recognized if the accounts were analyzed, while 22 per cent was either omitted from the accounts entirely or so disguised as to appear unrelated to the expense of repairing cars.

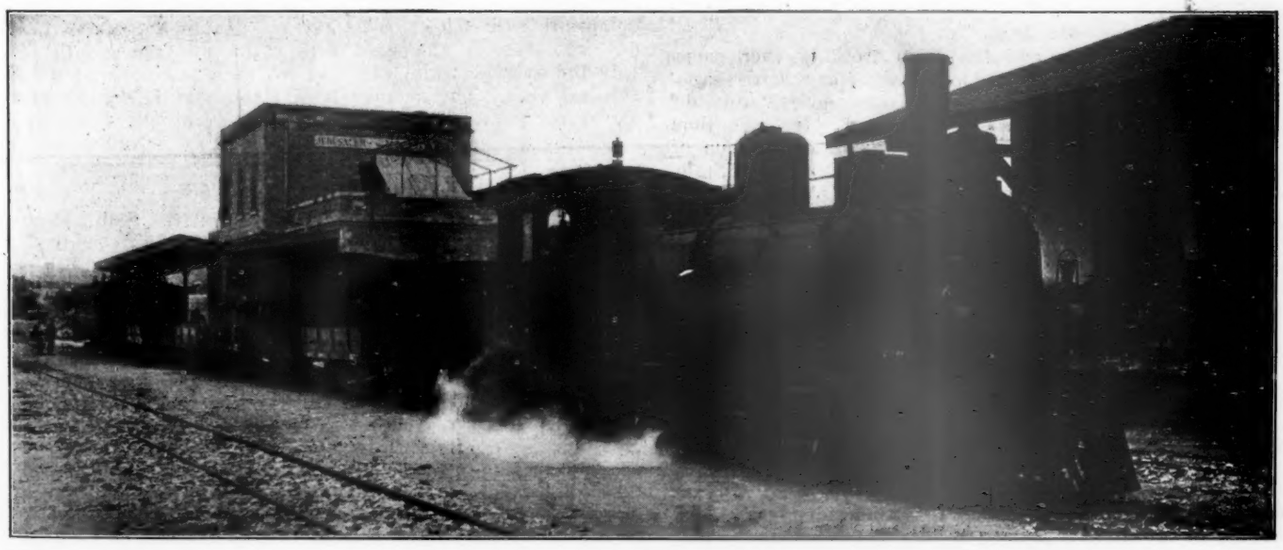


Photo by Keystone

A Mixed Train Pulling into Jerusalem

General News Department

Repeal of all transportation taxes at the end of the present calendar year has been agreed upon by Senate leaders as part of a compromise plan for tax legislation.

A fire which swept the Chicago, Rock Island & Pacific shops at Pratt, Kan., on October 7, destroyed the repair tracks, car sheds, carpenter shops and 25 box cars; estimated damage $200,000.

The freight traffic department of the Atlantic Coast Line has in its service 72 men who have been with the road an aggregate of 1,440 years. This was brought out at a recent conference of the freight representatives at Savannah. The 72 men each stated the length of his service, and the average was 20 years.

The disastrous collision at Paris, France, reported last week, resulted in about 40 deaths, not all of the bodies being recovered. Edouard Lozahic, the signalman at the outgoing end of the tunnel, was formally charged with homicide through imprudence. It was testified that he telephoned that the track was clear, although the leading train was still in the tunnel.

S. M. Williams, chairman of the Federal Highway Council has recently resigned that office because of the press of his own personal affairs. The Washington office of the Federal Highway Council has as a result been closed and the work suspended for the present, except perhaps that which the various committees of the association have found means for continuing.

The monthly meeting of the St. Louis Railway Club will held at the Hotel Statler, St. Louis, Mo., on October 14, and the principal address of the evening will be delivered by Edwin J. White, vice-president and general solicitor of the Missouri Pacific. Mr. White's subject will be "Something of the History of the Railroads of Missouri and Some Sidelights on the 1920 Transportation Act."

Albert Stone, who was 86 years old on October 8, has worked for the New York Central and its predecessor, the New York & Harlem, *seventy-one years,* and is still at it. He is a clerk in the office of the auditor of passenger accounts, in New York City. When the New York Central began its pension system in 1910, Mr. Stone, being 75 years old, was pensioned and retired. He played around a little while and took a trip here and there, but soon wanted his job back. He got it and has been working ever since. On his birthday he found his desk laden with gifts. He recalls the day, in 1864, when Commodore Vanderbilt became active in the affairs of the road. He was then a clerk in the office and is the sole survivor of a group of clerks who worked for Commodore Vanderbilt. Mr. Stone was born and reared on Manhattan Island. When he was 12 he was run over by one of the horse cars operated by the old Harlem Railroad. The accident, which caused the loss of his left leg, led to his employment by the railroad company. Robert Schuyler, then president of the road, arranged that he go to school two years, after which he went to work for the road.

A Conference on Railroad Cross Ties

In accordance with requests received by the American Engineering Standards Committee, a conference has been called to discuss the subject of railroad cross ties and switch ties. The meeting will be held on Tuesday, October 25, 1921 in Room 206 of the Atlantic Building, Washington, D. C. The purpose of the conference is to decide: (1) Whether the unification of specifications for railroad cross ties and switch ties shall be undertaken; (2) If so, what the scope of the work shall be; and (3) How the work shall be organized.

Passenger Traffic Officers

The American Association of Passenger Traffic Officers will hold its 65th annual convention at French Lick Springs, Indiana, on November 14 and 15, instead of Pinehurst, N. C., November 21 and 22 as previously announced.

Telegraph and Telephone Section

The committee of Direction of the Telegraph and Telephone section of the American Railway Association, has decided that the March meeting of this section shall be held at Richmond, Va., on March 21, 22 and 23. It was also decided to hold the next annual meeting at Colorado Springs, Colo., on September 20, 21 and 22, 1922.

Settle Railroad Tax Dispute

Attorneys for the Southern Railway, the Atlantic Coast Line and the Atlantic & Yadkin, the three railroad companies resisting the assessment levied by the North Carolina State Tax Commission on their property, and attorneys representing the state have reported an agreement to the three district judges hearing the case. The railroad companies will pay taxes on the valuation that they admit, while the question of additional taxes on the state's assessment will be litigated in the courts.

Operating Statistics for July and Seven Months

The Interstate Commerce Commission's monthly report of operating statistics of Class I roads for July and the first seven months of 1921 shows a reduction in the number of freight cars owned from 2,371,599 to 2,343,090. The average miles per car per day in 1921 was 21.5 as compared with 23.5 in 1920. The net ton miles per car day averaged 375 as compared with 473, and the tons per car 27.9 as compared with 28.6. The average train load was 643 as compared with 700, but the train speed in 1921 was 11.5 miles per car as compared with 10.4 in 1920. The traffic density, net ton miles per mile of road per day, for 1921 averaged 3,883 as compared with 5,072. The average locomotive miles per day was 48.6 as compared with 61.1. For the month of July the average train load was 660 tons as compared with 745 last year. The average train speed was 11.9 miles per car as compared with 10.5.

Checking Careless Drivers

At a crossing near Fort Loudon, Pa., on the South Penn Branch of the Cumberland Valley Division of the Pennsylvania Railroad, where the view for drivers of automobiles is obstructed until they are almost on the tracks, a Safety First observer of the railroad company recently checked motor vehicles which approached the crossing at excessive speed. In about two hours (between 12:50 and 3:10 p. m.), 34 out of 99 cars were carelessly driven. The average speed of the 34 cars was 25 miles an hour and three were traveling at 30 miles. The driver of a motorcycle, when within 25 feet of the crossing, was observed to turn his head to converse with the passenger riding in the side-car. Post-cards have been mailed through the State Highway Commissioner's office to those owners of the 34 vehicles who live in Pennslyvania. A supply of "Safety First" cards has been distributed to division superintendents for use by crossing observers.

Extension of Time on Interchange Rule Three

The mechanical division of the American Railway Association, in circular No. V-216, announces the extension of the effective date of section f of Rule 3 of the interchange rules, to January 1, 1922. As it now stands this section of the rule requires that after October 1, 1921, no cars carrying products which require the use of salt with ice, and equipped with brine tanks, shall be accepted in interchange unless provided with a suitable device for retaining the brine between icing stations. The extension of time has been made in accordance with the recommendation of the Committee on Car Construction, in view of the fact that not all refrigerator cars with brine tanks have yet been equipped to meet the requirements of the rule.

Union Pacific Offers University Scholarships

The Union Pacific has inaugurated the plan of awarding scholarships in the University of Nebraska to the boy ranking highest in the farm clubs in each of 39 counties in that state. This plan offers to the boy between 16 and 21 years of age ranking highest in the boys' and girls' club work for 1922, in corn, potatoes or wheat projects, a $75 scholarship in the college of agriculture, or the short winter course of the school of agriculture in the University. In addition to the scholarship, the Union Pacific will reimburse the student for the expense of railroad transportation from his home to the school and return. The winners will be chosen by a committee of three, consisting of the county superintendent, one person appointed by the director of extension in the University, and the third person to be chosen by these two members.

The railroad company has offered the same prizes for 1921 as outlined above for 1922, except that the competition is to be on activities now in effect, such as calf clubs, pig clubs, potato and corn clubs, etc.

Wire Banding of Packages for Protection

The freight claim division of the American Railway Association recently carried on an investigation among shippers in an effort to learn what progress was being made towards the elimination of "package troubles." It was found that firms using steel and wire banding for the securing of their packages have greatly reduced the shortages which had formerly occurred. One large Chicago firm reported that its package troubles were reduced 85 per cent by banding its packages; and another firm reported that the use of steel banding straps has reduced their losses 75 per cent.

The steel tape banding with the company's name or trade mark printed along the tape, and the ends sealed, has proved the most satisfactory. In this case, if the seals are broken, or if any part of the banding straps is missing or cut, and a piece of banding tape is substituted, it is a certainty that the package has been pilfered en route, and the shipper may file his claim accordingly. Many firms have found that banding packages in this manner has tended to keep dishonest employees in railroad service from looting the contents of their shipments.

Railway Fire Protection Association

The Railway Fire Protection Association will hold its eighth annual meeting at the Sherman Hotel, Chicago, on October 18, 19 and 20, with two sessions scheduled for Tuesday, two for Wednesday and one on Thursday.

The principal committee reports, with names of the chairmen, are as follows: Statistics, George R. Hurd; Protection of shop plants, J. R. Peters; Handbook on merchandise in transit, W. S. Topping; Coaling plants, W. E. Cathcart; Locomotive hazards, E. N. Floyd; Gasoline and electric motor trucks in freight depots and terminals, E. W. Reilly.

On Wednesday morning there will be a paper on fire protection on foreign railroads by Loring F. Wilcox, and one on fire prevention in tunnels, by Harry Pollard. On Wednesday afternoon there will be a paper on standardization of fire hose coupling, by E. R. Townsend, and a question box will be opened by J. L. Walsh.

The president of the Association is W. S. Hickey (N. Y., N. H. & H.), and the secretary is R. R. Hackett (B. & O.), Baltimore, Md. The chairman of the committee of arrangements at Chicago is G. R. Hurd (I. C.).

Imprisonment for Falsification of Car-Repair Bills

Theodore W. Krein, general manager of the Muscatine, Burlington & Southern, pleaded guilty to an indictment charging him with falsification of car repair records and accounts in violation of the Interstate Commerce Act, in the United States District Court at Davenport, Iowa, on October 6 and was sentenced to one year and a day in the federal penitentiary, and fined $3,000. The railroad company and Krein were charged with falsifying the company's records to show that the railroad had made repairs to cars of other railroads when no such repairs were actually made. Fraudulent bills based upon these records were rendered against other railroads and in this manner approximately $30,000 was collected from other carriers during the year 1919 for car repairs which were not made. Nearly all of this amount was collected from railroads operating under federal control and therefore was a fraud upon the government; the Muscatine, Burlington & Southern was not under federal control during that period. The prosecution followed an investigation by the Interstate Commerce Commission.

This road is 54 miles long, extending from Muscatine, Ia., south to Burlington. It has six locomotives and 22 freight and passenger cars.

C. S. Gaskill Joins Russian Mission of American Relief Administration

Charles S. Gaskill, formerly master mechanic of the Pennsylvania at Baltimore, sailed on October 4 to join the staff of Colonel W. N. Haskell, director of the American Relief Administration's Mission to Russia. Mr. Gaskill will have charge of the transportation of the foodstuffs with which the Administration proposes to supply the Russians. Mr. Gaskill was born at Mount Holly, N. J., on October 11, 1877. He was graduated from Princeton in 1898 and entered the employ of the mechanical department of the Pennsylvania at its Altoona shops. In 1917 he left his position as master mechanic at Baltimore to join the Railway engineers of the A. E. F. He was commissioned major and, later, lieutenant colonel. Following his discharge from the army, Mr. Gaskill became technical adviser to the Polish Ministry of Railways and held that position until quite recently when, having returned to this country to take up railway work again, he received his appointment to serve under Colonel Haskell.

C. S. Gaskill

The Pennsylvania's Committees on Loss and Damage

For the prevention of loss and damage to freight on the Northwestern Region of the Pennsylvania a complete reorganization of this work has been devised by which special divisional committees, each of which will have the assistance of six subcommittees, will supervise the handling of freight in their respective territories. The divisional committee will consist of the superintendent, supervising agent, trainmaster, division engineer, master mechanic, division operator, road foreman of engines, and captain of police, and this committee will provide whatever corrective methods are necessary to prevent freight loss and damage. These committees have been organized for the Chicago Terminal, Fort Wayne, Logansport, Toledo, Grand Rapids, and Mackinaw divisions. The sub-committees will be headed by the members of the divisional committee, who will check and supervise the various stages of the freight movement which fall within their own particular line of work. Thus the sixth sub-committee, of which the captain of police is chairman, will look after the sealing of cars that are found unsealed or

improperly sealed and the protection of freight in transit and at stations and transfers. In addition to the detailed work assigned to each of these committees, all employees are being urged to keep a constant watch for conditions needing correction and to report them promptly to the division safety agents who will be responsible for forwarding them to the proper committee for action.

Freight Loss and Damage Fifty-five Millions

The total of freight loss and damage expenditures for six months ending June 30, 1921, as totaled from the reports of 227 carriers, representing 90.4 per cent of the railroad mileage in this country, was $55,707,753. Of this sum, $33,054,508 was chargeable to full carload shipments. Clothing (dry goods), fruit, vegetables and grain, furnished 28.8 per cent of the total amount of claims.

The freight claim division of the American Railway Association has recently issued a circular to division superintendents giving a statistical summary of the five main causes responsible for the loss and damage claims, which has been prepared from the May statements. "Unlocated damage" heads the list of principal causes with 14.8 per cent of the total. "Rough handling" follows with 13.7 per cent of the total claims. "Loss of entire packages" also amounted to 13.7 per cent of the total claims. "Defective equipment," such as leaky car roofs, loose floorings, etc., caused 10.9 per cent of the claims, with 93 per cent of this amount due to full carload shipments. "Delay" was the cause of 10.5 per cent of all claims, and 89.1 per cent of the delay claims were on full carload shipments.

Loss and Damage Agitation

The Pennsylvania Railroad has been having a campaign to prevent loss and damage to freight in transit, aiming to awaken employees to the seriousness of the situation and to impress the urgent necessity for their wholehearted co-operation in uncovering and correcting wasteful practices. In 1920 payments on account of loss or damage to freight cost the railroads of the country more than $100,000,000, largely because of the general backsliding and loss of morale following upon the war period. F. W. B. Humes, superintendent of stations and transfers and chairman of the Eastern regional committee, has congratulated the employees on the enthusiasm displayed in the drive. He commends the intensive supervision of operations at stations and transfers, in yards and on the road by division officers; the frequent meetings with employees of various classes and the daily bulletins; also the publicity through local newspapers. The marked success of this campaign has convinced the committee that another drive on similar lines is desirable in the near future.

From January, 1920, to June, 1920, the number of claims presented decreased 15 per cent, while from January, 1921, to June, 1921, the decrease was 38.9 per cent. June, 1921, compared with June, 1920, shows a decrease of 48.6 per cent. The decrease in number of claims filed is greater than the decrease in traffic. There is, however, urgent necessity for further improvement. Amounts paid for theft continue to stand out prominently. Actual results of the campaign show that in the Eastern Region in one month the number of irregularities in handling l. c. l. freight was 51.8 per cent less than the same month last year.

Eye Accidents and Faulty Vision Cause Waste in Industries

Eye accidents are revealed as an important source of avoidable national waste in a special report of the Committee on Elimination of Waste in Industry of American Engineering Council, just made public. The report embodies the results of an investigation conducted in many states in connection with the assay of waste in basic industries started by Herbert Hoover.

The total number of industrial blind in the United States is given as 15,000, or 13.5 per cent of the total blind population, this type of injury being the leading causative factor of blindness, according to the report which was prepared by Earle B. Fowler. The eye, it was found, is involved in 10.6 per cent of all permanently disabling accidents.

Present protective methods as applied in large plants have effected a great reduction in injuries. The use of goggles is one of the chief protective devices. In the plants of the American Car & Foundry Company there has been a reduction of more than 75 per cent through the use of goggles and the percentage of reduction would be much higher if the men would wear goggles more conscientiously, according to the management. Not a single case of injury to the eyes from broken glass has been recorded since goggles were introduced into the shops of the New York Central. All employees of the Union Pacific are now required to wear goggles on eye-dangerous work. Striking reductions in eye accidents are also shown by the American Locomotive Company and the American Steel Foundries, eye accidents in the plant of the latter company having been reduced 85 per cent.

The report also states that industrial waste is chargeable to sub-normal vision and faulty lighting. The correction of substandard vision produces an increase in return that will pay for its cost in the opinion of the management in plants where several years of trial has provided a basis for judgment. The report states that it has been shown improved lighting systems increase output 2 per cent in steel plants and as much as 10 per cent in shoe factories where work is more exacting. The cost of providing adequate illumination for the entire industry of the country would amount to ½ per cent to 1 per cent of wages. One estimate placed the loss due to faulty conditions in this country as above the entire cost of illumination. Of the 466 plants investigated, only 8.7 per cent were found to have lighting conditions that could be rated as excellent.

J. H. Young Discusses the Railroad Situation

Speaking at a meeting of the Denver Rotary club, on September 29, Joseph H. Young, president of the Denver & Rio Grande Western, expressed his opinion on several issues pertaining to the railroads which are of paramount interest to the public at large. Of the railroad rate situation, President Young said in part:

"Railroad rates are out of kilter and some of the rates are too high, there is no doubt. Present-day rates, and, in particular, present-day freight rates, are the result of years and years of work and study by experts up to the time the war started, and of a horizontal rise of first 5 per cent, then 30 per cent, and then 25 to 40 per cent. They were thus thrown out of adjustment. Rates must not be reduced horizontally, but must be worked out on a common-sense basis. There are many ways this can be done."

Wages, President Young declared, are not entirely out of proportion, except as they affect common laborers, such as car oilers, who, he said, are classed as skilled labor, whereas, he asserted, "any man with common sense can be taught the work in one operation." Speaking of the proposed grouping of the railroads as advocated by the Interstate Commerce Commission, President Young declared the belief that the government is without the power to force the stockholders of the stronger lines to accept stock in the weaker ones at a figure that would be satisfactory to those who own them.

"Grouping of the railroads as proposed by the Interstate Commerce Commission is part of a plan to take care of the weaker railroads," President Young said. "Development of the stronger lines has tended to weaken the less powerful, which are, in themselves, a menace to the country's finance and detrimental to the country in which they operate.

"Strong lines that work together at their terminals with other lines may, by turning their freight business over to one particular line, force other lines that compete with that line into a tight place and strangle them. We should have an arrangement whereby there would be a just distribution of freight between competing lines at terminal points, general time of hauling and method of handling being practically the same. A shipper has no right to determine the routing of the material he ships, beyond naming the receiving road and the delivering road. It is really of little consequence to the shipper who handles the goods as long as the service is as quick and as good.

"Service of an acceptable standard can only be accomplished by allowing the weaker lines to earn money for their maintenance; to earn interest on their bonded indebtedness, and to earn enough to meet the requirements of additions and expansion."

Traffic News

The executive committee of the National Industrial Traffic League has decided to hold the annual meeting of the league at the Hotel Sherman, Chicago, on November 9 and 10, with the annual dinner coming on the evening of the ninth.

Railroads operating in Ohio have been ordered by the Public Utilities Commission of that state to reduce freight rates on sand, gravel and crushed stone, approximately 28.5 per cent. On paving brick, in addition to the percentage reduction, a reduction of 10 cents a ton is ordered.

Hearings will soon be held by the department of justice on the request of western fruit growers for the modification of the "packers' consent decree" by which it is hoped that it will be possible for the fruit growers to ship their products in the meat men's refrigerator cars. The attorney-general has asked the Department of Commerce and the Department of Agriculture to send representatives to the hearings. No definite date for the hearings has as yet been announced, and the whole question will be held in abeyance.

Hearings on five new transcontinental applications and one old application asking to disregard the long and short haul statute on traffic moving up and down the Pacific coast and a like request on traffic moving east and west will begin in Chicago on November 7, with Attorney-Examiner W. A. Disque conducting the hearing on the latter petition and Special Examiner Pitt on the first named. After concluding at Chicago, hearings will be held at: Denver, Colo., November 21; Helena, Mont., November 23; Salt Lake City, Utah, November 25; Boise, Idaho, November 28; Spokane, Wash., December 1; Portland, Ore., December 5; San Francisco, Cal., December 8; Phoenix, Ariz., December 17; Atlanta, Ga., January 9; and New Orleans, La., January 11.

Coal Production

For four weeks in succession the production of soft coal has advanced steadily upward. The total output during the week of October 1, according to the weekly bulletin of the Geological Survey, is estimated at 8,876,000 net tons. The week's production was the largest since last January and represents an increase over the preceding week of 4 per cent.

Little Progress in New England Divisions

The Boston & Maine on October 6 reported to the Interstate Commerce Commission that little progress had been made in the direction of readjustment of freight rate divisions between the New England lines and the lines west of the Hudson river within the 90 days which the commission in its recent decision in the New England case had allowed for a report. In conformity with the commission's recommendation, representatives were appointed to confer with the lines west of the Hudson and the first meeting was held in New York on August 18. The trunk lines and Central Freight Association roads had no suggestions to offer and said that they would expect the New England carriers to submit proposals. The Boston & Maine says that it began promptly to study its divisions for the purpose of permanently revising them, but it became evident that nothing definite could be formulated within the 90 day period.

At a second meeting, on September 21, the New England carriers called attention to their serious financial condition and the impossibility of making a revision within 90 days and each proposed to trunk line representatives that pending such a revision the carriers west of the Hudson should shrink their divisions by 15 per cent on all traffic except coal, this amount to be added to the divisions accruing to the New England lines. No reply has been received to this proposal. As soon as substantial progress has been made in developing a basis for a revision of its divisions the Boston & Maine will submit the results to the committees of the defendants, but if favorable action is not secured in conference it is the intention to bring the matter to the attention of the commission, with a view to a prompt submission of the issues involved.

Toll's Exemption Bill Passed

The bill introduced by Senator Borah to exempt American coastwise vessels from the payment of tolls for passage through the Panama Canal was passed by the Senate on October 10 by a vote of 47 to 37, after five hours of lively debate devoted mainly to the international aspects of the question, in view of the treaty with Great Britain, rather than to the domestic economic phases of the canal tolls controversy. Although President Harding had previously on several occasions declared himself in favor of the passage of such a bill, he has not recently been urging it and the vote on the bill was interpreted as a defeat for the administration. Thirty-five Republicans and 12 Democrats voted for the bill and 20 Democrats and 17 Republicans against it. Senator Lodge, the Republican floor leader, opposed the bill, while Senator Underwood, the Democratic leader, supported it. Without a roll call, the Senate voted down amendments proposed by Senator King to authorize the President to seek arbitration of the tolls question with Great Britain and to appropriate $2,000,000 as a subsidy for American vessels using the canal. Some of the Senators who voted for free tolls in 1914 on this occasion voted against the bill, while others who had formerly been for the bill reversed themselves. The bill now goes to the House, and it is predicted that it is likely to remain there in committee for some time, possibly until after the disarmament conference has been held, because the differences with Great Britain with regard to the interpretation of the canal treaties are regarded as embarrassing to the administration at this time.

Hearing on Lumber Rates

Hearings on the complaint of the Southern Hardwood Traffic Association, asking for a reduction in the rates on hardwood to those prevailing before August 26, 1920, were begun before Commissioner Cox and Chief Examiner Quirk of the Interstate Commerce Commission at Washington on October 4 and were so expedited that they were concluded on October 10, oral argument being held immediately following the taking of the testimony. Representatives of the complainants asked that the case be treated as an emergency matter on the ground that the condition of the hardwood lumber industry is now as critical as was that of the railroads when Ex Parte 74 was argued. It was declared that because of the disruption of rate relationships created by the percentage advance the southern hardwood shippers are now doing very little business and no logging operations are being carried on. This has greatly decreased the tonnage of the Southern roads although it appeared that some of the northern and eastern lines have profited by that fact to some extent by the increase in shipments of lumber from other sections.

Reductions in the rates were opposed by railroad witnesses representing the southern roads, as well as those north of the Ohio river, on the ground that the railroads could not afford the reduction in their revenues and that the shippers had exaggerated the effect that would result to them from the proposed reduction in the rates. E. P. Bates, freight traffic manager of the Pennsylvania, presented exhibits in contradiction of contentions of the shippers that existing rates have caused a reduction in shipments of lumber. Other witnesses who opposed the reduction represented the Southern, Louisville & Nashville, Nashville, Chatanooga & St. Louis, Illinois Central, Missouri Pacific and Chicago, Rock Island & Pacific. L. E. Wettling, manager of the statistical bureau of the western lines, presented general exhibits regarding the financial condition of the railroads to show that they were in no condition to stand any considerable reductions in rates. Among other things, he testified that what showing the railroads have made has been largely at the expense of maintenance, saying that during the first six months of 1921 the railroads expended for maintenance purposes $290,000,000 less than in the corresponding period of 1920, which, if it had been spent, would have more than absorbed all of the net operating income.

Commission and Court News

Interstate Commerce Commission

The commission has suspended, until February 7, the operation of proposed increased rates on brick, clay and clay articles from Central Freight Association Territory to Sault Ste. Marie, Ont.

The commission has suspended, until February 7, the operation of schedules contained in a Minneapolis, St. Paul & Sault Ste. Marie tariff which proposes reductions in proportional rates on grain from Minneapolis, St. Paul and Minnesota Transfer, Minn., to Gladstone, Mich., when to go east by lake.

The commission has suspended from October 17 unitl February 14, 1922, the operation of schedules published in Agent F. A. Leland's tariff, which propose increased commodity rates on domestic fruits, melons and vegetables from Texas producing points to interstate points.

The commission has suspended until February 7, the operation of schedules published in a New Orleans, Texas & Mexico tariff proposing reductions in the rates on salt from Jefferson Island, La., to Chicago, St. Louis, and points on the Illinois Central and Yazoo & Mississippi Valley directly intermediate thereto, north of the Mississippi-Louisiana state line.

The commission has suspended from October 5 until February 2, 1922, the operation of an item in a Chicago Great Western tariff proposing the cancellation of through rates on corn, oats, rye and barley from stations in Iowa, Minnesota and Missouri on the Chicago Great Western Railroad to Texarkana, Ark.-Tex., leaving applicable instead combination rates based on either Des Moines, Iowa, or Kansas City, Mo.

The commission has announced a series of hearings before Examiner Barclay at New York, in the rooms of the Merchants' Association, 233 Broadway, on the charges made by the Machinists' union as to the alleged excessive cost of car and locomotive repairs at outside shops. The case of the Philadelphia & Reading will be heard on October 24, the Erie on October 26 and Central of New Jersey on October 28.

The commission has suspended from November 15 until March 15, 1922, the operation of an exception to transcontinental west bound joint tariffs which provide for the non-application of Group J rates from and to points on the D. & R. G. W. east and south of Grand Junction, Colo., leaving applicable instead combination rates, which results in increases to the extent of the local rates to the boundary of the restricted territory.

State Commissions

The Wisconsin Railroad Commission, on October 6, denied the application of the Chicago & North Western for authority to reduce train service on its line between Madison, Wis., and Montfort.

The federal court has ruled that the Interstate Commerce Commission has power to order the discontinuance of service on the Eastern Railway of Texas, 30 miles long, between Lufkin and Crockett. The Railroad Commission of the State has refused permission for the scrapping of the line. The State has now appealed the case to the United States Supreme Court.

The Public Service Commission of Louisiana, in order No. 10, has denied the application of Morgan's Louisiana & Texas Railroad & Steamship Company for authority to advance the freight rates on sugar cane. The commissioners think that the period of depression is passing; that the sugar business is depressed as well as the railroad business and that if the railroads make an advance in rates and thus burden the sugar planters, they will cause a general depression in business from which the carriers also will suffer.

The Railroad Commission of the State of California on September 23 gave permission to the California Southern to lease its road to the Atchison, Topeka & Santa Fe. Application for the lease of the California Southern was originally made to the Interstate Commerce Commission, but consideration of it by that body was protested by the California Commission as the California Southern lies wholly within the State. Now that the matter has been passed upon in California the state commission's objection to the Interstate Commerce Commission giving its approval to the transaction has been withdrawn.

Court News

Mechanism in Constant Use Without Injury Held Safe

The New York Court of Appeals holds that, when it comes to a question of proper condition and safety under the Boiler Inspection Act, mechanism which has been in constant use for years without causing injury must be considered proper and safe until some notice or occasion indicates its danger and insufficiency.—Ford v. McAdoo (N. Y.) 131 N. E. 874.

Provision in Transportation Act as to Limitation of Actions Not Applicable to Employers' Liability

The New Jersey Court of Errors and Appeals holds that the federal act of February 28, 1920, enacting that the period of federal control shall not be computed as a part of the periods of limitation in actions against carriers, is inapplicable to actions under the Federal Employer's Liability Act.—Jones v. Delaware, L. & W. (N. J.) 114 Atl. 331.

Amount of Damages for Injuries to Automobiles in Transit

The South Carolina Supreme Court holds that where an automobile company shipped cars to itself, the title not passing to the purchasers until the shipment arrived and the draft was paid, the purchaser's rights as to injuries in transit were no greater than those of the automobile company, and it could recover no more than the automobile company could have recovered if it had sued, namely, the price the purchaser had agreed to pay, less the value of the injured cars.—M. C. Johnson Motor Co. v. Payne (S. Car.) 107 S. E. 252.

Trainmen May Assume Automobilist Will See and Avoid Train on Crossing at Night

In an action for damages resulting from a collision between the plaintiff's automobile and a freight car standing on the tracks of the Philadelphia & Reading at a street intersection in Chester, the Delaware Supreme Court holds that the men in charge of a train lawfully obstructing a crossing at night have a right to assume that a reasonably careful automobilist would adopt such lights and rate of speed that he could stop his car within the distance that he could see the train and avoid running into it, and were not negligent in failing to warn by lights or otherwise of the presence of the train on the highway.—P. & R. v. Dillon (Del.) 114 Atl. 62.

United States Supreme Court

The United States Supreme Court on Monday refused to grant an application of the state of North Dakota for an interlocutory injunction to restrain the collection by the railroads of intrastate rates increased by the Interstate Commerce Commission by the amount of the interstate rate increases made last year. The broad question of the right of the commission to advance state rates under the new law is pending before the court in the Wisconsin case.

Foreign Railway News

Westinghouse Receives Additional Order From Chile

The Chilean State Railways have ordered six express passenger electric locomotives from the Westinghouse Electric International Company. This equipment is in addition to the 33 electric locomotives and other electrical material the contract for which the Westinghouse Company received several weeks ago (*Railway Age*, October 1, page 645). This equipment will be used in electrifying the Chilean State Railways from Valparaiso to Santiago and Los Andes, a total line mileage of 144 miles.

Denies Russian Railways Are in Bad Way

Statements to the effect that the railways of Russia are utterly disorganized are untrue, according to a press dispatch from Paris, quoting C. R. Crane, former American minister to China. "As regards the trans-Siberian Railway, the longest line in the world, I found not only that everything is in a state of complete repair, but that the Soviets have successfully electrified portions of the line, something which had never been attempted under the Czarist regime. I traveled the entire length in a private car. I never suffered at any time from hunger, and the personnel is apparently well fed."

August Exports of Car Wheels and Axles

Exports of car wheels and axles in August were valued at $255,752—a total greater than that of any month since April. Detailed figures by countries, as compiled by the Bureau of Foreign and Domestic Commerce, are as follows:

Countries	Dollars	Countries	Dollars
England	1,071	Colombia	5,241
Canada	29,967	Ecuador	720
Gautemala	2,442	Peru	7,214
Mexico	55,063	Venezuela	186
Jamaica	524	Dutch East Indies	74,921
Other British West Indies	222	Japan	39,176
Cuba	3,378	Australia	1,734
Dominican Republic	450	Philippine Islands	676
Argentina	12,764	British South Africa	225
Brazil	19,029		
Chile	749	Total	255,752

Exports of Locomotives in August

Exports of steam locomotives in August rose to 66, valued at $2,334,737, showing an increase of 33 over the July figure of 30, valued at $876,840. Detailed figures by countries, as compiled by the Bureau of Foreign and Domestic Commerce, follow:

Countries	Number	Dollars
Canada	1	2,400
Honduras	4	40,400
Mexico	21	780,200
Brazil	7	238,500
Peru	1	5,138
China	25	1,105,409
Japan	7	162,690
Total	66	2,334,737

Proposed Wage Cut on Scottish Railways

C. T. Cramp, industrial secretary of the National Union of Railwaymen, addressing railway employees at Edinburgh, said that the Scottish railways have proposed the abolition of the increases in wages granted by the National Wages Board in June (averaging $1.25 per week), and of the special payment for night duty; also that minors shall not receive the pay of adults until they reach the age of 21, according to the Times (London). There are also proposals to abolish the eight-hour day, and substitute 10 hours in many classes, with a "spread" in some grades of 12 hours.

The companies have agreed, he continued, on condition that the employees give up the National Board's award on wages, that they will withdraw their other proposals, and in the event of this offer being rejected, they will go, first to the Central, and afterwards, in the event of disagreement, to the National Wages Board, with the whole of their original proposals. There could be no strike until one month after the National Wages Board has issued its award.

The meeting passed a resolution, expressing the opinion that the proposals were entirely unacceptable, and recording dissatisfaction at the financial statement made by the companies as the reason for proposed changes. The meeting asked for information regarding the allocation of the $25,000,000 set aside by the government for the relief of companies having a deficit because of the conditions of the national settlement, and urged on the union executive the desirability of preserving the principle of national negotiations.

New Railway in South West Africa

The administrator of Britain's South-West Africa Protectorate, G. R. Hofmeyr, has approved the construction by the South African Railways and Harbors Board of a new railway to run from Windhuk, the capital, in an easterly direction to Gobabis, a distance of about 132 miles according to the Times (London). It is to be built on the standard South African gage (3 ft. 6 in.), and the cost is estimated at $3,600,000. Gobabis is one of the chief settlements in the eastern portion of the Protectorate, and, having numerous fresh water springs in its vicinity, it is the centre of one of the few districts where agriculture is feasible. Maize is the principal crop.

Argentina Buys Freight Cars

According to Commerce Reports, word has been received from Commercial Attaché Edward F. Feely, of Buenos Aires, reporting that the lowest bids offered by each of the following nationalities, as covering railway cars, under tender at Buenos Aires, were as follows:

	Gold pesos per car*
Lowest German bid	3,484
Lowest American bid	4,580
Lowest Belgian bid	5,000
Lowest British bid	5,900

*Gold peso = $.96 at par.

Further word has been received which indicates that the authorities of Buenos Aires have decided to increase the number of cars which they intend to purchase at this time. The original bids covered 70 of the above cars, but at the time of placing the order it was decided to increase the quantity to 100 cars, and the business has been awarded to a firm in Breslau, Germany, under the name of Linke Hoeman, the price being 3,290 Argentine gold pesos each.

This transaction is peculiarly interesting as showing the position of American manufacturers compared with Belgian and British makers who are obviously not in a favorable position with regard to such equipment, although the design of the cars used on the railways of Argentina resembles European practice more closely than the American designs.

This incident also raises the question as to whether the German manufacturers will be able to make prompt delivery of materials of satisfactory quality. Recent experience in other foreign markets suggests that serious difficulty in this connection may result.

The Spanish Railway Problem

The railway problem in Spain is somewhat similar to that in this and other countries, according to Commerce Reports. Operating costs have risen to the point where freight and passenger rates must be increased or some corresponding form of relief discovered if the roads are to continue to operate and escape bankruptcy. The public is not in favor of an increase in rates.

Nor are the railways giving satisfactory service. They are built on three different gages, approximately 5 ft. 6 in., 4 ft. 8½ in., and 3 ft. 4 in., respectively, and as they all radiate from Madrid, they do not always meet the economic needs of the country.

Among other efforts the government is making to meet the present situation, they have decided to encourage the construction of locomotives and cars in Spain, and have ar-

ranged that when bids are called, the business shall be awarded to manufacturers in Spain, provided their price does not exceed foreign offers by more than 10 per cent. In addition to this preference they have increased the duty on imported locomotives and cars, and Commercial Attaché Cunningham, of Madrid, reports that further increases are to be expected. Moreover, Spanish industrial plants, on complying with certain formalities, are allowed a reduction in the import duties charged on foreign manufactured materials needed in the construction of locomotives and railway cars.

As a result of the government's activities, the production in Spain of railway equipment of the class mentioned has been stimulated, and Commercial Attaché Cunningham reports that in the first six months of this year orders have been placed for the construction of 5,000 European pattern railway, freight, passenger, and baggage cars with 16 different Spanish plants in different parts of the country.

Correspondingly, the Maquinista Terrestre y Maritima has received an order for 50 locomotives, of which five have been delivered, and as these are larger and more powerful than other engines previously in operation, the better service resulting is adding to the prestige of these builders and to the disadvantage of the German, Belgian, French, Italian and British manufacturers who have previously supplied most of the locomotives operated in Spain.

Other companies plan to build locomotives in Spain, and, in addition to the inducement mentioned, there are other ways to show them preference. The Sociedad Espanola de Construcciones Babcock and Wilcox has been extended an exemption from the payment of imports and stamp taxes covering an issue of 39,200 shares of 500 pesetas (1 peseta = $.193 at par) each, and also a 60 per cent reduction during five years from the amounts that would ordinarily be due under the utilities tax. These special benefits are understood to have been accorded to assist this company in the production of locomotives and parts and similar products. Recently the Spanish government established an industrial bank with a capital of 150,000,000 pesetas, which is reserved for loans to purely Spanish enterprises.

Exports of Track Materials in August

Exports of track spikes and steel rails fell sharply in August from the July totals. August exports of steel rails were valued at $274,864 as against $1,018,859 in July. Detailed figures by countries, as compiled by the Bureau of Foreign and Domestic Commerce, are as follows:

Countries	Railroad spikes. Pounds	Rails of steel. Tons	Switches, frogs, splices, bars, etc. Dollars	Structural iron and steel Tons
Belgium	.....	.....	1,405	.....
France	.....	.....	550	2
Netherlands	.....	.....	23	.....
Norway	.....	.....	340	.....
Portugal	.....	.....	152	.....
Scotland	.....	.....	5,475	.....
British Honduras	400	.....	.....	.....
Canada	34,970	1,323	51,619	4,094
Costa Rica	12,600	15	21	.....
Gautemala	24,434	.....	285	.....
Honduras	55,140	1,413	6,283	20
Nicaragua	10,000	.....	21	.....
Panama	.....	20	.....	.....
Mexico	21,581	62	8,743	888
Newfcundland and Labrador	.....	.....	23	12
Jamaica	.....	.....	.....	10
Trinidad and Tobago	273	.....	.....	3
Cuba	79,000	4	10,634	549
Dominican Republic	14,400	12	.....	2
Argentina	.....	.....	.....	121
Brazil	.....	445	103,334	155
Chile	3,320	800	.....	.....
Colombia	80,700	.....	6,749	23
Dutch Guiana	.....	.....	.....	11
Peru	66,000	.....	268	85
Uruguay	.....	.....	.....	9
Venezuela	2,600	97	2,737	71
China	.....	40	73,119	104
British India	.....	.....	.....	1,608
Dutch East Indies	.....	90	218	.....
Japan	33,026	423	2,950	1,687
Australia	.....	38	10,239	190
New Zealand	.....	.....	4,689	.....
French Oceania	.....	.....	9	.....
Philippine Islands	2,000	.....	295	4
British South Africa	.....	.....	3,980	.....
Portuguese Africa	.....	.....	.....	19
Egypt	.....	.....	150	.....
Total Quantity	439,444	4,782	.....	9,667
Total value, dollars	14,982	274,864	294,311	726,825

Equipment and Supplies

Locomotives

THE DELAWARE & HUDSON is inquiring for from 1 to 10 Mikado type locomotives.

THE CENTRAL OF PERU is inquiring through the locomotive builders for some Mikado type locomotives.

THE MISSISSIPPI CENTRAL has ordered 1 Mikado type locomotive from the American Locomotive Company.

The J. J. NEWMAN LUMBER COMPANY, Hattiesburg, Miss., has ordered 1 Mikado type locomotive from the American Locomotive Company.

THE EAST BRAZIL FEDERAL RAILWAYS have ordered 3 Pacific type and 4 Consolidation type locomotives, from the Baldwin Locomotive Works.

THE CHICAGO, ROCK ISLAND & PACIFIC, reported in the *Railway Age* of August 27, as inquiring for 10 Mikado type locomotives has ordered 14 Mikado type locomotives from the American Locomotive Company.

THE HUTCHINSON LUMBER COMPANY, Huntingdon, W. Va., has ordered 1 Shay type locomotive from the Lima Locomotive Works, Inc. This locomotive will have a weight of 80 tons in working order and will be equipped with superheater.

THE PEKING-SUIYUAN (China), reported in the *Railway Age* of June 24 as contemplating asking for bids through the Universal Steel Export Corporation, 26 Cortlandt street, New York City, for 7 Mallet type, 25 Mikado type and 5 Pacific type locomotives is now asking for bids on this equipment.

Freight Cars

THE ATLANTIC COAST LINE is inquiring for 30 steel underframes for caboose cars.

THE BLAW-KNOX COMPANY, Pittsburgh, Pa., is inquiring for three 50-ton gondola cars.

THE UNION RAILWAY EQUIPMENT COMPANY, Chicago, is asking for prices on 25 30-ton refrigerator cars.

THE UNITED FRUIT COMPANY, New York, is inquiring for a number of cane cars of 60,000 lb. capacity.

THE NATIONAL RAILWAYS OF MEXICO are inquiring through the car builders for prices on 2,000 box cars.

J. B. FLETCHER & COMPANY, Fort Worth, Texas, are inquiring for 100 tank cars, of from 10,000 to 12,000 gal. capacity.

THE WATERBURY GAS LIGHT COMPANY, Waterbury, Conn., has ordered one 50-ton coal car from the General American Car Company.

THE STAUFFER CHEMICAL COMPANY, Chauncey, N. Y., has ordered 1 tank car of 8,000 gal. capacity from the General American Tank Car Corporation.

THE CHESAPEAKE & OHIO, reported in the *Railway Age* of June 17, as asking for prices for rebuilding about 2,500 cars, is now asking for prices on the repair of 500 to 1,000 composite gondola cars and 1,500 to 2,000 steel coal cars.

THE TOLEDO & OHIO CENTRAL is asking for prices on the repair of from 200 to 250 steel underframe box cars, and prices are also wanted for the repair of from 350 to 400 open top steel cars, for this road and the Kanawha & Michigan.

THE CENTRAL OF BRAZIL is asking for prices on 250 20-ton box cars, standard gage, also for 150 20-ton box cars, meter gage, 25 20-ton cattle cars, standard gage and 20 20-ton cattle cars of meter gage, all to be of wood construction. Information

may be obtained from Mr. Snowden, representing Bordeaux & Company, Rio de Janeiro, at the office of Monsen & Company, 2 Rector street, New York City.

THE PEKING-SUIYUAN (China), reported in the *Railway Age* of June 24, as contemplating asking for bids through the Universal Steel Export Corporation, 26 Cortlandt street, New York City, on 400 high side steel freight cars, is now asking for prices on this equipment.

Passenger Cars

THE BALTIMORE & OHIO has ordered 2 dining cars from the Pullman Company.

THE NEW YORK CENTRAL is inquiring for prices on from 25 to 50 motor trucks.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 2 combination baggage and mail cars, from the American Car & Foundry Company.

Iron and Steel

THE CHICAGO, MILWAUKEE & ST. PAUL has ordered 1,354 tons of steel for reinforcing underframes of coal cars from A. M. Castle & Company, Chicago.

Machinery and Tools

THE NEW YORK CENTRAL has ordered 1—6 ft. radial drill and a 400-ton car wheel press from the Niles-Bement-Pond Company, New York. The railroad has ordered also a 48 in. planer and roundhouse equipment including some small lathes, grinders and bolt cutters.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company will construct a warehouse and the necessary trackage leading to it, on its water-front property at Stockton, Cal., the work to cost $99,000. The same company will install a 55,000 gal. oil tank with necessary facilities for fueling oil burning locomotives at Clovis, N. M., to cost about $40,000. Trackage will be constructed by the Santa Fe at a cost of $32,000, to a large coal mine at Radley, Kan.

CANADIAN PACIFIC.—This company has awarded a contract to Angus and Taylor, North Bay, Ontario, for the construction of a 68-mile extension from Kipawa, Quebec, to Desquinze, and eight miles into Villa Marie on Lake Temiskaming, the work to cost about $3,500,000.

CHICAGO, BURLINGTON & QUINCY.—This company has awarded a contract to the Link Belt Company, Chicago, for a 400-ton coaling station to be erected at Centralia, Ill.

CHICAGO UNION STATION.—A contract has been awarded to A. S. Schulman, Chicago, by the Chicago Union Station Company which includes the installation of all of the wiring and switchboard equipment for a substation which will supply power to the new Railway Mail Terminal building, Chicago.

LOS ANGELES & SALT LAKE.—This company plans extensions to its lines from Whittier to Santa Ana, a distance of 14 miles, and from Whittier to Tustin, a distance of 22 miles, both in Orange County, Cal. The work, as estimated, will cost between $1,500,000 and $2,000,000.

MISSOURI, KANSAS & TEXAS.—This company has awarded a contract to T. L. Johnson, Sedalia, Mo., for the reconstruction of its reclamation plant at Parsons, Kan., which was destroyed by fire on September 17, with an estimated loss of $85,000.

NACOGDOCHES & SOUTHEASTERN.—This company contemplates extending its line 28 miles southeast from Nacogdoches, Texas, to a junction with the Atchison, Topeka & Santa Fe, at some point on the Beaumont-Longview division between San Augustine, Texas, and Center.

Supply Trade News

The Superior Supply Company, Chicago, has been appointed the exclusive railway distributor of the Rex concrete mixers, manufactured by the Chain Belt Company, Milwaukee, Wis.

C. A. Dunn has resigned as general superintendent of the Detroit Seamless Steel Tubes Company, Detroit, Mich., to take a position in the sales department of the **Prime Manufacturing Company,** Milwaukee, Wis.

The Toronto, Ontario, office of the **Independent Pneumatic Tool Company,** Chicago, has been removed from 32 Front street West, to larger quarters at 163 Dufferin street, Toronto. This office will remain in charge of **William McCrae.**

C. J. Burkholder, who has been serving the **Franklin Railway Supply Company,** New York, as special engineer in the western territory, is now supervising service for the same company on all railroads. A sketch of Mr. Burkholder's career was published in the *Railway Age* of July 2, 1921, on page 41.

George L. Sawyer, formerly sales manager of material handling machinery for the Barber-Greene Company, Aurora, Ill., has been appointed sales representative for **The Universal Crane Company,** of Elyria, Ohio, in charge of the New York territory, with headquarters at the Allied Machinery Center, New York City, N. Y.

W. E. Kelly, western representative of the Central Railway Signal Company, Pittsburgh, Pa., has been appointed also representative of the Handlan-Buck Manufacturing Company, St. Louis, Mo., for Chicago and adjacent territory, with headquarters at room 624 McCormick building, 332 South Michigan avenue, Chicago.

H. O. Davidson has been appointed to take entire charge of the Prudential Sectional Building Department of the **Blaw-Knox Company,** with headquarters at Baltimore, Md., where he will also serve as general manager of the C. D. Pruden plant, of the Blaw-Knox Company. At the time of his appointment Mr. Davidson was general manager of the Hydraulic Steelcraft Company.

O. B. Frink, assistant principal engineer of the Hall Switch & Signal Company, Garwood, N. J., has been appointed representative of the Waterbury Battery Company, Waterbury, Conn., with office at 30 Church street, New York City, and **S. J. Hough,** field service engineer at New York, of the Waterbury Battery Company, has been appointed western representative with office at 1361 Peoples Gas building, Chicago, Ill.

J. H. Redhead, assistant manager of sales of the National Malleable Castings Company, has resigned to become manager of the **Reliance Company,** Cleveland, Ohio, which firm has recently been organized by the Reliance Trust Company in conjunction with its affiliated companies, the Reliance Savings and Loan Company and the Reliance Securities Company. These companies are engaged in various banking and investment activities. Mr. Redhead was born in Cleveland in 1880 and was graduated from Central High School of that city in 1899. He began his career as an office boy with the National Malleable Castings Company and worked through various branches of the accounting department until 15 years ago when he entered the sales department. He was lately appointed assistant manager of that department. For several years Mr. Redhead has been in charge of the advertising carried on by the American Malleable Castings Association.

THE PENNSYLVANIA reports the movement of fruits and vegetables out of Chicago on its lines as 30 per cent greater than last season. The largest increase is in apples.

Railway Financial News

ANN ARBOR.—*Annual Report.*—The corporate income account for the year ended December 31, 1920, compares with the previous year as follows:

	1920	1919
Standard return (January and February, 1920; year 1919)	$85,580	$528,000
Guaranty, March 1 to August 31	254,343	.....
Railway operating revenues	4,718,662	.....
Railway operating expenses	4,121,212	.....
Net from railway operations	937,373	.....
Railway tax accruals	186,100	.....
Railway operating income	751,265	.....
Total non-operating income	23,367	.....
Gross income	774,632	534,907
Interest on funded debt	358,080	320,835
Total deductions from gross income	701,123	483,754
Net income	73,508	51,154
Estimated amount in addition to standard return due from the government account guaranty period—deficit	232,742	.....
Balance of income	306,251	51,154

The operating revenues and expenses in detail and the principal traffic statistics for 1920 compare with 1919 as follows:

OPERATING REVENUES

	1920	1919
Freight	$4,344,190	$3,579,846
Passenger	718,564	718,714
Total operating revenue	$5,385,992	$4,534,015

OPERATING EXPENSES

	1920	1919
Maintenance of way and structures	$848,041	$619,181
Maintenance of equipment	1,089,672	743,511
Maintenance of equipment—depreciation	99,714	72,824
Traffic	92,876	57,626
Transportation	2,644,236	2,103,759
General	178,731	152,459
Total operating expenses	$4,953,662	$3,749,977
Net operating revenue	432,330	784,038
Railway tax accruals	250 027	193,200
Railway operating income	181,966	590,338
Gross income	245,923	653,483
Total deductions from gross income	772,417	483,865
Net income	Def. $526,494	$169,168

PASSENGER TRAFFIC

Number of revenue passengers carried	729,014	777,714
Number of passengers carried one mile	24,651,334	25,782,729
Average distance each passenger carried (miles)	33.81	33.15
Average revenue per passenger per mile	$.02915	$.02788

FREIGHT TRAFFIC

Number of revenue tons carried	3,046,913	2,788,068
Number of tons carried one mile	427,427,877	383,524,581
Average distance haul of one ton—miles	140.28	137.56
Average receipts per ton per mile	$.00893	$.00812

LEHIGH VALLEY.—*Segregation Plan Filed.*—See article on another page of this issue.

NATIONAL RAILWAYS OF MEXICO.—*New Directors.*—Carlos R. Felix and Gumaro Villalobos have been elected directors on the New York local board.

PITTSBURGH & LAKE ERIE.—*Annual Report.*—The income account for the year ended December 31, 1920, compares with the previous year as follows:

	1920	1919
Compensation (January and February)	$1,496,703	.....
Additional compensation account completed additions and betterments	25,060	.....
U. S. Government guaranty, March 1 to August 31	4,537,398	.....
Net railway operating income, September 1 to December 31	3,668,456	.....
Total (compared with compensation accrued in 1919)	9,727,618	$9,218,313
Total other income	937,079	953,287
Gross income	10,664,697	10,171,600
Interest on funded debt	403,926	327,514
Income transferred to other companies	1,024,337	1,143,041
Total deductions from gross income	3,355,945	4,298,915
Add revenues and expenses applicable prior to January 1, 1918, settled by U. S. R. A.	933,175	175,984
Net corporate income	8,241,927	6,048,669
Dividends declared (10 per cent each year)	3,598,560	3,598,560
Surplus for year	4,643,367	2,450,109

The operating revenues and expenses in detail and the principal traffic statistics for 1920 compare with 1919 as follows:

OPERATING REVENUES

	1920	1919
Freight	$29,345,511	$23,158,642
Passenger	3,243,099	2,669,148
Total operating revenues	$35,740,951	$28,034,188

OPERATING EXPENSES

	1920	1919
Maintenance of way and structures	6,593,910	4,290,032
Maintenance of equipment	12,705,389	8,830,756
Traffic	265.704	180,686
Transportation	13,704,117	10,078,328
General	787,820	663,024
Total operating expenses	$34,086,017	*$24,057,266
Net revenue from railway operation	$1,654,934	$3,976,922
Railway tax accruals	2,524,988	825,326

*Adjusted for purposes of comparison.

PASSENGER TRAFFIC

Number of revenue passengers carried	6,782,863	6,029,053
Number of revenue passengers carried one mile	141,311,211	121,384,998
Average distance each passenger carried (miles)	20.83	20.13
Average revenue per passenger per mile (cents)	2.366	2.199

FREIGHT TRAFFIC

Number of revenue tons carried	41,431,699	38,702,145
Tons of revenue freight carried one mile	2,435,656,891	2,187,691,000
Average distance haul of one ton of freight (miles)	63.26	60.74
Average revenue per ton per mile (cents)	1.205	1.059

RUTLAND.—*Annual Report.*—The income account for the year ended December 31, 1920, compared with 1919 as follows:

	1920	1919
Compensation (January and February)	$167,522	.....
Additional compensation account completed additions and betterments	15,158	.....
U. S. Government guaranty, March 1 to August 31	510,139	.....
Net railway operating income, September 1 to December 31	207,160	.....
Total (compared with compensation accrued in 1919)	$899,978	$1,051,350
Total other income	98,236	91,743
Gross income	998,213	1,143.093
Interest on funded debt	450,573	452,173
Total deductions from gross income	600,622	578,359
Less revenues and expenses applicable prior to January 1, 1918, settled by U. S. R. A.	15,180	27.095
Surplus for the year	382,411	537,639

The operating statistics for 1920 and 1919 are:

OPERATING REVENUES

	1920	1919
Freight	$3,308,490	$2,610,670
Passenger	1,642,466	1,395,875
Total operating revenues	$5,979,621	$4,838,534

OPERATING EXPENSES

	1920	1919
Maintenance of way and structures	$1,133,784	$812,377
Maintenance of equipment	1,634,022	1,179,712
Traffic	77.815	75.996
Transportation	3,113,299	2,263,692
General	183.032	153,199
Total operating expenses	$6.165,583	*$4,497,058
Net revenue from railway operations	Def. $185,962	$341,476

*Adjusted for purposes of comparison.

PASSENGER TRAFFIC

Number of revenue passengers carried	1,458.525	1,405,420
Number of revenue passengers carried one mile	50,476,486	47,824.133
Average distance each passenger carried (miles)	34.61	34.03
Average revenue per passenger per mile (cents)	3.25	2.92

FREIGHT TRAFFIC

Number of revenue tons carried	2,585,735	2,319,934
Tons of revenue freight carried one mile	264,148,202	216,622,169
Average distance haul of one ton of freight	101.16	93.37
Average revenue per ton per mile (cents)	1.253	1.205

Railroad Administration

The Railroad Administration reports the following final settlements, and has paid out to the roads the following amounts:

Union Pacific and subsidiaries	$8,000,000.00
St. Joseph & Grand Island	1,000,000.00
St. Louis-San Francisco and subsidiaries	550,000.00
Susquehanna & New York	42,000.00
Arkansas & Memphis Railway Bridge & Terminal	90,000.00
St. Paul Bridge & Terminal	34,000.00
Ontonagon	11,936.84
Short Line Railroads:	
Lufkin, Hemphill & Gulf	8,700.00
Deering Southwestern	9,000.00
Bullfrog Goldfield	12,000.00

The payment of these claims on final settlement is largely made up of balance of compensation due, but includes all other disputed items as between the railroad companies and the administration during the 26 months of federal control.

Dividends Declared

Bangor & Aroostook.—Common, 2 per cent; preferred, 3½ per cent, semi-annually; both payable October 1 to holders of record September 29.

Belt Railroad and Stock Yards (Indianapolis).—Common, 2 per cent, quarterly; preferred, 1½ per cent, quarterly; both payable October 1.

Georgia Railroad & Banking Company.—3 per cent, quarterly, payable October 15 to holders of record October 2.

Meadville, Conneaut Lake & Linesville.—2 per cent, payable October 1 to holders of record September 15.

Norwich & Worcester.—Preferred, 2 per cent, quarterly, payable October 1 to holders of record September 14.

Pere Marquette.—Prior preferred, 1¼ per cent, quarterly, payable November 1 to holders of record October 15.

Annual Report

Southern Railway Company—Twenty-Seventh Annual Report

RICHMOND, Va., October 11, 1921.

To the Stockholders of
SOUTHERN RAILWAY COMPANY:

The Board of Directors submits the following report of the affairs of the Company for the year ended December 31, 1920:

The accompanying tables will tell the story of another difficult year. The gross revenue for 1920 reached the record breaking figure of $152,817,409.93, the revenue from freight alone exceeding one hundred millions of dollars. Unfortunately, no benefit to net income followed this remarkable expansion in gross. Expenses and taxes were more than twice what they were in 1917 the year preceding the surrender of the property to the Government. An idea of the volume of business, as well as of the swollen current of expenses, during this period of post-war inflation may be obtained from the following comparison of revenue and expense units:

	1920 Compared with 1917	
	Increase	Decrease
Gross Revenue	68.46%	.....
Expenses and Taxes	111.44%	.....
Operating income	.....	36.09%
Tons of revenue freight handled	15.82%	.....
Average distance hauled	9.13%	.....
Average receipts per ton per mile	35.79%	.....
Number of passengers carried	10.20%	.....
Average passenger journey	0.16%	.....
Average receipts per passenger per mile	38.34%	.....
Expenses and taxes per dollar of revenue	21.28%	.....
Average wage paid	85.76%	.....
Wages per dollar of revenue	23.75%	.....
Average cost of fuel coal per ton	94.18%	.....
Average cost of cross ties	137.29%	.....
Average cost of new rail per ton	47.17%	.....
Average cost of ballast per cubic yard	203.70%	.....

So long as traffic continued at high tide, as it did during the first six months after the end of Federal control, these costs could be endured, but they were economically unsound, nevertheless, as was evident the moment the stimulus of traffic was withdrawn. Management, regulated in its every act except that of meeting the pay roll, was, then, deprived of the power to apply the remedies which alone can save a business in such conditions.

In November traffic began to slump, as was expected. The reduction was so precipitous that in January the gross revenue was only three-fourths of that for the preceding October. Despite, or, as some economists maintain, because of, high rates, the decline during the ensuing six months to June 30th was $10,332,896.04, compared with the preceding year, or 14.20%. Every measure for retrenchment in the expense account open to management was applied when the first symptoms of this decline in revenues were felt. Since the month of March the results reflect substantial progress in arresting the loss in net, but, despite gruelling effort and sacrifice, the current loss was actually large. The one comfort was that, with allowances for seasonal fluctuations, the gross revenues month by month from January to July remained practically stationary. The worst was soon known.

As this report is written there are evidences that the long drought has been broken; that there is such a renewal of business activity in the South as to justify hope that a railroad depending on that business may now, once more, look forward to profitable operations.

Meanwhile the Board of Directors, exercising its best judgment, has been compelled again to suspend the preferred stock dividend. This distressing action has been severely criticised by disappointed stockholders, but, on explanation of the facts, has usually been accepted as inevitable. It may be appropriate here to say that the first ambition of the management at this time is to accomplish an early restoration of that dividend.

Out of this experience one ventures to draw some philosophy. The rate increases authorized by the Interstate Commerce Commission effective September 1, 1920, conspicuously failed to produce the result sought by the Transportation Act, *i. e.*, the stabilization of railroad income on a basis of a fixed percentage return annually on the value of railroad property. It is difficult to escape the judgment that the remedy was applied too late, that so long as the business of the United States shall continue to be subject in the future, as it always has been in the past, to alternate periods of prosperity and depression, no regulation of railroad rates can be successful which does not permit the accumulation and conservation of surplus earnings of boom times against the need of hard times. Such a policy would make it possible in periods of lean traffic accompanying industrial depression to afford business the stimulus toward recovery of lower charges for transportation. The policy actually followed made it necessary to raise rates at a time when every one engaged in industry knew that depression was imminent. Whatever else it may have been, this was not good business.

IMPROVEMENTS AND BETTERMENTS IN THE CAPITAL ACCOUNT.

No additions of importance were made to the property during the year, the policy of the management in that respect having been governed by a consideration of the inflated costs of construction and the uncertain business outlook consequent upon the readjustment period, as well as the difficulty of obtaining and the prohibitive cost of new capital. The increase in the balance sheet item "Investment in Equipment" from $75,582,323.13 on December 31, 1919, to $86,960,333.51 on December 31, 1920, is due to taking up in the accounts the engines and cars costing upwards of ten millions of dollars received through the Government equipment trust referred to in the report for last year.

SETTLEMENT WITH THE FEDERAL RAILROAD ADMINISTRATION.

It is gratifying to report that the effort to effect an acceptable adjustment of the account with the United States Railroad Administration arising out of Federal control has succeeded much earlier than seemed possible a year ago.

In this settlement the Railroad Administration has paid to the Company $8,412,000, of which $6,000,000 was paid in cash and $2,412,000 in three-year notes of the Company which the Administration had left on its hands as a result of its effort to handle the financing of the note maturity of March, 1919. The account is complicated with many entries of both debits and credits, but what this settlement amounts to briefly may be explained as follows:

At the commencement of Federal operation on January 1, 1918, the Railroad Administration took the Company's current cash and collected its outstanding accounts receivable, and in this way the Administration received	$22,702,216.15
of the Company's money. Against this the Administration paid all of the Company's current obligations on that date, consisting of wages, supply bills, etc. On these accounts the Administration paid out for the Company	25,752,914.55
As a result of these strictly cash transactions the Company owed the Administration a net balance of	$3,050,698.40
The "standard return" claimed for the twenty-six months amounted to $40,416,768.49 and of this the Administration paid to or for account of the Company for fixed charges, dividends, etc., $36,425,339.15, leaving due on this account	3,981,429.34
so that down to this point in the account the Administration owed the Company	$930,730.94
The double tracking of the main line was under way when Federal operation commenced. The Railroad Administration completed this work, and the cost of it and of other additions and betterments made and paid for by the Administration amounted to	14,586,299.30
The account as stated down to this point practically was undisputed on both sides, except for certain improvement charges to which the Company took exception. It is seen that the Company owed the Railroad Administration	$13,655,568.36
We now come to the claims set up by the Company and disputed in whole or in part by the Railroad Administration, consisting of $10,338,031.10 for additional compensation beyond the "standard return," $27,764,447.79 for undermaintenance, and $12,801,960.58 of bookkeeping items such as depreciation, property retired, etc., a total of	$50,904,439.47
in settlement of which and by way of reparation the Company has, in effect, received	22,067,568.36
paid as follows:	
In improvements	$13,655,568.36
In notes	2,412,000.00
In cash	6,000,000.00
	$22,067,568.36

Of the cash received the sum of $5,000,000 was paid over to War Finance Corporation in part payment of the Company's notes aggregating $7,355,270 for money borrowed during the period of Federal control by direction of the Railroad Administration and applied toward the payment of fixed charges then accruing.

EXPRESS BUSINESS.

Express traffic on the Company's lines was handled prior to Federal control by Southern Express Company under a contract providing for a division of the gross revenue. One of the results of Government operation of railroads was the retirement of the regional express companies from that field and the conduct of the railroad express traffic of the entire country by one company, which, upon the resumption of corporate operation of the railroads, proposed to the railway companies the continuation of its country wide activities under a uniform contract. Aside from the fact that the terms prescribed by this contract were substantially unsatisfactory from the standpoint of our interests, the management of Southern Railway System was convinced that responsible local management and competition in express service were desired by the people of the South and would prove of material advantage to the welfare of the railroad. As a consequence a new corporation, Southeastern Express Company, was chartered under the laws of the State of Alabama, with power to transact express business, and its capital stock of one million dollars par value offered for public subscription, resulting in a substantial oversubscription and an original stock list of 2,651 holders, principally Southern business men, scattered over the twelve States served by the lines of Southern Railway System and Mobile and Ohio Railroad, on which the Southeastern Express Company commenced active operations on May 1, 1921. It is still too early to report on the operations of this Company. It will suffice to say that they are entirely satisfactory to the railway companies which it serves and seem amply to justify the decision which inaugurated those operations.

AGRICULTURAL AND INDUSTRIAL DEVELOPMENT IN THE TERRITORY SERVED.

AGRICULTURE.

In common with other parts of the United States, the farmers of the South suffered severely from the abrupt fall in prices of farm products. This was especially true in the cotton belt. Tempted by the high prices of raw cotton prevailing during the 1920 planting season, resulting from the abnormal demand for cotton goods of all kinds and the relatively small crop in 1919, the growers produced in 1920 a crop of 13,270,970 bales, exclusive of linters. In anticipation of a price of forty cents or more per pound, the effort was toward maximum production rather than to economy in the expense of farm operations, and the collapse in price to an average of twelve cents caused a large loss, reduced the purchasing power of the farmer, and seriously affected the business of entire communities. To a somewhat less extent the same was true of tobacco, peanuts, and other field crops.

The expectation of a continued high price for cotton gave a set-back to crop diversification as well as to the production of live stock. Many farmers sold their breeding animals, and there was an actual decrease in the numbers of hogs and beef cattle in the South.

Despite this record, the agricultural outlook for the future is hopeful.

While estimates of the cost of producing the cotton crop of 1920 have ranged from twenty-seven cents to thirty-three cents a pound, the crop of 1921 probably has been made at the lowest per pound cost in years, notwithstanding the small crop. Little fertilizer has been used and labor has been plentiful and cheap, conditions which afford reasonable assurance of a fair profit at the prevailing prices.

Owing to light foreign demand, which usually absorbs a large part of the poor grades of tobacco, prices for these grades are very low, but growers are getting fair prices for the better grades.

This year's southern peach crop was the largest on record, of excellent quality, and has brought fair prices, and there is a prospect of a larger acreage being devoted to that purpose. Melon raising has been profitable, and the same is true of other kinds of truck throughout the territory served by the Southern Railway System.

Unusually late frosts in the spring almost destroyed the apple crop in principal apple growing regions in the territory, except in northern Georgia, where there are prospects of nearly a normal crop.

The Development Service of Southern Railway System is continuing its efforts to correct the economic error of the one-crop system in the South, working especially in the direction of securing more and better live

stock and of increasing fruit and truck production in localities where there is promise of success in those directions. Especial attention is being given to dairy development, not through establishments devoted exclusively or principally to dairying so much as encouraging the keeping of a few good dairy cows on each farm and securing the establishment of creameries so located that the farmer may have a market for sour cream, retaining the skimmed milk on the farm to be fed to hogs or poultry. In addition to furnishing a constant source of revenue directly to the railway, this method, through the periodical distribution of cream checks among the farmers, contributes substantially to the general prosperity of farming communities. An illustration of this is afforded by a creamery at Selma, Alabama, started on a small scale several years ago, which is now a source of substantial revenue to the railway, as well as to the farmers for milk and cream purchased from them. When this creamery was started there were few dairy cows in the community. The number has been so increased that a second creamery has been established at Selma, and the elder concern has gone into the making of cheese as well as butter, affording the farmers a market for whole milk as well as cream.

Southern sweet potatoes are coming to the front as a large scale profitable crop. Curing them in specially constructed storage houses has made possible their marketing during the entire year. We are encouraging the building of these storage houses and co-operating with growers to secure broader markets throughout the United States.

The area of land devoted to strawberries was increased somewhat during the past year, especially in east Tennessee, and there are indications of a further substantial growth in that territory as well as in Alabama and other States. The growing of dewberries for market has been started on the line between Macon and Brunswick. A small quantity of such berries was marketed this year at profitable prices. There will be some increase in the acreage of Satsuma oranges in the southern part of Alabama. Encouragement is being given to the cultivation of blueberries in southern Georgia and northern Florida. Vinifera grapes are being introduced at points in the southern part of the territory.

INDUSTRIAL.

The slackening national demand for commodities of all kinds was severely felt in the South, and there was a consequent let up in the provision of additional manufacturing capacity. There was not, however, a total cessation of construction of new industrial plants. Far-sighted men, making ready for the return of improved business, have been preparing accordingly, in some cases by building entirely new plants and in others by making additions to existing plants.

There is reason to believe that within the next few months there will be under construction at points served by Southern Railway System at least two new large cement plants, an important porcelain industry, a glue plant, and a paint and pigment industry.

In at least one important industry the South has suffered relatively less than other parts of the country during the painful pilgrimage to "normalcy." The figures of the United States Census Bureau for the twelve months ended July 31, 1921, show that the consumption of cotton by mills in the cotton growing States amounted to 2,997,675 bales, compared with 3,582,919 bales in the preceding twelve months, a decrease of 585,244 bales or 16.3%. In the same period mills in all other States consumed 1,890,218 bales, compared with 2,836,815 bales in the preceding twelve months, a decrease of 946,597 bales or 33.4 per cent.

RELATIONS WITH EMPLOYEES

The thanks of the Board of Directors are tendered to the officers and employees for the faithful performance of their duties. Especially, the management records with pleasure its sense of appreciation of the loyal and self-sacrificing co-operation of those employees who, through their able representatives, have joined with the officers in harmonious conference in the effort to accomplish the disagreeable but necessary task of readjustment of wage and working conditions.

Respectfully submitted by order of the Board.

FAIRFAX HARRISON, President.

Table 1.—INCOME STATEMENT.

	1920	1919
OPERATING REVENUES—10 Months, March-December, 1920:		
Freight	$83,330,291.61	
Passenger	32,070,594.85	
Miscellaneous Passenger-Thain	1,008,348.56	
Mail	2,587,224.88	
Express	2,663,469.27	
Other Transportation	1,216,280.62	
Incidental	2,658,676.72	
Joint Facility	804,352.05	
Total Operating Revenues	$126,339,238.56	
OPERATING EXPENSES—10 Months, March-December, 1920:		
Maintenance of Way and Structures	$17,995,948.14	
Maintenance of Equipment	25,028,276.45	
Traffic	1,818,388.15	
Transportation	58,430,342.81	
Miscellaneous Operations	1,224,222.82	
General	3,470,328.40	
Transportation for Investment—Credit	1,696.46	
Total Operating Expenses	$107,965,810.31	
Net Revenue from Operations—10 Months, March-December, 1920	$18,373,428.25	
Taxes	$3,853,447.80	
Uncollected Revenues	39,789.02	
Hire of Equipment	1,407,352.08	
Joint Facility Rents	726,887.25	
Total Other Expenses—10 Months, March-December, 1920	$6,027,476.15	
Operating Income—10 Months, March-December, 1920	$12,345,952.10	
Certified Standard Return Under Federal Control Act, January-February, 1920	3,108,982.18	
Operating Income, 10 Months, Standard Return 2 Months, 1920	$15,454,934.28	
Standard Return—12 Months, 1919		$18,653,893.15

Property operated by United States Railroad Administration.

NON-OPERATING INCOME:	1920	1919
Income from Lease of Road	$32,405.98	$59,676.90
Miscellaneous Rent Income	248,308.57	233,091.68
Income from Rail Leased	82,629.78	53,787.87
Dividend Income	1,268,692.48	1,035,492.67
Income from Funded Securities	904,361.02	684,548.35
Income from Unfunded Securities and Accounts	286,597.66	158,840.44
Miscellaneous Income	27,542.79	4,688.91
Total Non-Operating Income	$2,850,538.28	$2,230,126.82
Total Gross Income	$18,305,472.56	$20,884,019.97
DEDUCTIONS FROM TOTAL GROSS INCOME:		
Rent for Leased Roads	$2,827,172.41	$2,400,254.73
Miscellaneous Rents	45,058.29	38,414.73
Separately Operated Properties	548,734.18	6,980.24
Interest on Unfunded Debt	492,405.61	668,985.12
Corporate Expenses	66,860.93	381,351.37
War Taxes	68,000.00	426,343.91
Miscellaneous Income Charges	123,387.99	94,249.47
Total Deductions of This Class	$4,171,619.41	$4,016,579.57
Total Available Income	$14,133,853.15	$16,867,440.40
Interest on Funded Debt	$11,144,830.00	$10,901,408.88
Interest on Equipment Obligations	1,046,866.26	598,456.24
Dividend on Southern Railway—Mobile and Ohio Stock Trust Certificates	226,008.00	226,008.00
Total Deductions of This Class	$12,417,704.26	$11,725,873.12
Balance of Income Over Charges	$1,716,148.89	$5,141,567.28
Dividend of 2½% on Preferred Stock Paid December 31, 1920, Charged Against Income for the Year 1920 (the Dividend of 2½% Paid June 30, 1920, Having been Reserved Out of Income for the Year 1919)	$1,500,000.00	$3,000,000.00
Additions and Betterments Charged to Income	88,094.20	4,307.63
Miscellaneous Appropriations of Income	14,340.81	.....
BALANCE CARRIED TO CREDIT OF PROFIT AND LOSS	$113,713.88	$2,137,259.65

Table 2.—PROFIT AND LOSS.

Credit Balance December 31, 1919		$45,888,377.46
Add:		
Credit Balance of Income for the year	$113,713.88	
Net Profit from Sale of Securities	131.069.59	
Net Miscellaneous Credits	924,782.45	
		1,169,565.92
		$47,057,943.38
Deduct:		
Adjustment of Revenues and Expenses Prior to January 1, 1918		83,569.14
Credit Balance December 31, 1920		$46,974,374.24

Table 3.—GENERAL BALANCE SHEET.

ASSETS.	December 31, 1920	December 31, 1917*
Investments:		
Investment in Road	$340,683,046.27	$342,018,146.28
Investment in Equipment	86,960,333.51	75,392,465.35
Total Investment in Road and Equipment	$427,643,379.78	$417,410,611.63
Cash Deposited in Lieu of Mortgaged Property Sold	$9,822.50	$5,000.00
Miscellaneous Physical Property—Rails and Fixtures leased to others	918,982.98	708,385.28
Investments in Affiliated Companies:		
Stocks	35,329,105.90	33,971,354.90
Bonds	28,307,968.38	28,300,459.04
Notes	4,936,368.04	1,989,004.59
Advances	4,222,017.69	2,503,518.32
Miscellaneous (Matured interest coupons)	.....	18,825.00
Total Investments in Affiliated Companies	$72,795,460.01	$66,783,161.85
Other Investments:		
Stocks	$94,007.00	$298,222.00
Bonds	5,158,913.45	5,273,913.45
Notes	418,680.17	499,380.11
Advances for Purchase of Additional Equipment	.....	2,184,476.04
Total Other Investments	$5,671,600.62	$8,255,991.60
Total Investments	$507,039,245.89	$493,163,150.36
Current Assets:		
Cash	$7,969,141.67	$7,445,217.08
Time Deposit	.....	1,530,789.15
Special Deposits	3,062,487.10	2,951,472.95
Loans and Bills Receivable	532,810.19	1,515,665.99
Traffic and Car Service Balances Receivable	2,522,554.16	3,250,905.69
Balances due from Agents and Conductors	1,250,792.01	1,220,422.07
Miscellaneous Accounts Receivable	11,023,190.39	7,192,708.43
Material and Supplies (Table 2)	17,635,896.18	10,250,687.63
Interest and Dividends Receivable	768,220.39	597,145.46
Other Current Assets	1,788,645.36	2,499,421.41
Total Current Assets	$46,553,737.45	$38,454,435.86

	1920	1919
Deferred Assets:		
Working Fund Advances	$40,547.06	$146,590.65
Liberty Bonds—Subscribed for Employes	.....	195,900.00
Cash and Securities in Insurance Fund.	1,252,975.32	1,022,891.45
Cash and Securities Deposited under North Carolina Railroad Lease	175,000.00	178,600.00
Other Deferred Assets	442,910.46	119,873.74
Total Deferred Assets	$1,911,432.84	$1,663,855.84
Unadjusted Debits:		
Insurance Premiums and Rents paid in Advance	$67,189.23	$133,234.80
Unextinguished Discount on Funded Debt	.....	182,434.60
Additions and Betterments Expenditures, Freight Claims: Foreign Mileage and Sundry Items in Suspense	4,755,661.91	3,314,306.45
Total Unadjusted Debits	$4,822,851.14	$3,629,975.85
Claim Against United States Government.	$35,142,487.60	.....
Expenditure by United States Government —Unadjusted	13,957,615.61	.....
Securities of the Company held by it: 1920 / 1917		
Unpledged $7,452,200.00 / $5,095,200.00		
Pledged 58,495,000.00 / 44,250,000.00		
Totals.. $65,947,200.00 / $49,345,200.00		
Grand Totals	$609,427,370.53	$536,911,417.91

*By reason of the Federal operating period, December 31, 1917, is the latest truly comparable date.

LIABILITIES	1920 December 31,	1917* December 31,
Capital Stock:		
Common	$120,000,000.00	$120,000,000.00
Preferred	60,000,000.00	60,000,000.00
Total Southern Railway Company Stock	$180,000,000.00	$180,000,000.00
Southern Ry.-Mobile & Ohio Stock Trust Certificates	5,650,200.00	5,650,200.00
Total Stock	$185,650,200.00	$185,650,200.00
Long Term Debt:		
Funded Debt (Table 4)	$234,212,500.00	$235,429,500.00
Equipment Trust Obligations (Table 5).	18,721,000.00	17,846,000.00
Total Long Term Debt	$252,933,500.00	$253,275,500.00
Total Capital Liabilities	$438,583,700.00	$438,925,700.00
Governmental Grants:		
Grants since July 1, 1914, in aid of Construction	$84,078.58	$73,220.09
Current Liabilities:		
Loans and Bills Payable	$7,880,270.00	$455,000.00
Traffic and Car Service Balances Payable	3,963,909.37	1,982,322.00
Audited Accounts and Wages Payable.	21,126,810.15	12,521,524.94
Miscellaneous Accounts Payable	2,975,592.00	1,734,504.14
Interest Matured, including interest due January 1st	2,898,169.30	2,932,649.15
Dividends Matured Unpaid	2,000.00	7,545.00
Funded Debt Matured Unpaid	161,727.80	10,673.80
Unmatured Dividends Accrued	56,502.00	56,502.00
Unmatured Interest Accrued	1,930,730.60	1,669,852.96
Unmatured Rents Accrued	356,108.55	289,322.57
Expenses Accrued not vouchered	1,420,563.03	993,665.56
Other Current Liabilities	1,854,530.99	2,460,196.04
Total Current Liabilities	$44,627,113.79	$25,113,758.13
Deferred Liabilities:		
Deferred Payments Account Reconstruction Rogersville Branch; Contractors' Per Cents Retained and Sundry Items	$1,624,081.29	$1,758,614.42
Unadjusted Credits:		
Taxes	$675,180.43	$976,848.49
Insurance Reserve	1,252,975.32	1,022,891.45
Operating Reserves	2,762,394.84	3,632,223.58
Depreciation accrued on:		
Rail Leased to Other Companies	139,899.47	95,114.27
Equipment Owned	22,508,413.47	16,941,357.50
Equipment Leased from Other Companies	563,122.71	349,676.11
Sundry Items	3,985,425.90	1,926,440.28
Total Unadjusted Credits	$31,887,412.14	$24,944,551.68
Corporate Surplus:		
Additions to Property, since June 30, 1907, through Income and Surplus	$1,661,187.48	$1,306,906.94
Reserve for 2½% Dividend on Preferred Stock	.....	1,500,000.00
Miscellaneous	14,340.81	504.28
Total Appropriated Surplus	$1,675,528.29	$2,807,411.22
Profit and Loss—Balance	$46,974,374.24	$43,288,162.37
Unadjusted Items (Net) Subject to Settlement of Claim with United States Government	$43,971,082.20	.....
Grand Totals	$609,427,370.53	$536,911,417.91

*By reason of the Federal operating period, December 31, 1917, is the latest truly comparable date.

Railway Officers

Financial, Legal and Accounting

W. H. Whitehead has been appointed auditor of the Lehigh & New England with headquarters at Bethlehem, Pa., succeeding E. M. Kuntz, resigned.

Operating

V. S. Burnham, trainmaster on the Los Angeles division of the Southern Pacific, with headquarters at Indio, Cal., has been transferred to Los Angeles, in a similar capacity succeeding C. M. Murphy, promoted. **H. R. Hughes** will succeed Mr. Burnham as trainmaster on the Los Angeles division, with headquarters at Indio.

J. S. de Echagaray has been appointed superintendent of the Monterrey and Gulf division of the National Railways of Mexico with headquarters at Monterrey, succeeding J. C. Garcia, transferred. **R. P. Micatri** has been appointed superintendent of the Guadalajara division with headquarters at Guadalajara, succeeding M. Acosta, transferred. **V. E. Palacios,** superintendent of the Isthmian division with headquarters at Tierra Blanca, has been transferred to a similar position on the Aguas Calientes division with headquarters at Aguas Calientes, succeeding P. R. Rivera, transferred. **A. Fuhrken,** superintendent of the Durango division with headquarters at Durango, has been transferred in a similar capacity to the Hidalgo division with headquarters at Mexico City, succeeding O. M. Palma, transferred.

C. M. Murphy has been appointed assistant superintendent of the Los Angeles division of the Southern Pacific, with headquarters at Los Angeles, Cal., succeeding **C. J. Donnatin,** who has been promoted to division superintendent of the San Joaquin division, with headquarters at Bakersfield, Cal. Mr. Donnatin succeeds **F. M. Worthington,** who has been transferred to the Coast division, with headquarters at San Francisco, Cal., succeeding **T. Ahern,** who has been transferred to the Sacramento division, with headquarters at Sacramento, Cal., succeeding **J. O. Brennan,** deceased. **A. J. Hancock** has been appointed supervisor of transportation, with headquarters at San Francisco, Cal., succeeding **L. R. Smith,** who has been appointed assistant superintendent of the Stockton division, with headquarters at Stockton, Cal. Mr. Smith succeeds **W. M. Stillman,** who has been transferred to the Sacramento division, with headquarters at Sacramento, Cal., succeeding **W. L. Hack,** who has been promoted to superintendent of the Salt Lake division, with headquarters at Ogden, Utah. Mr. Hack succeeds **E. L. King,** who has been transferred to the Portland division, with headquarters at Portland, Ore., succeeding **A. T. Mercier,** who has resigned to accept service with another company.

Traffic

A. S. Gimble, general agent of the Gulf Coast Lines with headquarters at Monterrey, Mex., has been transferred to Brownsville, Tex.

T. L. Southwell has been appointed commercial agent of the Seaboard Air Line with headquarters at Orlando, Fla., effective October 1.

G. L. Oliver, general freight and passenger agent of the Fort Smith & Western, with headquarters at Fort Smith, Ark., has been promoted to traffic manager with the same headquarters.

J. E. Sneed has been appointed traffic agent in charge of the newly established Cleveland-Detroit freight and passenger offices of the Chicago & Eastern Illinois, with headquarters at Detroit, Mich.

J. J. Morton has been appointed foreign freight agent of the Canadian Pacific with headquarters at New York, succeeding **F. G. Frieser,** resigned.

L. J. Anderson, traveling passenger and freight agent of the Denver & Rio Grande Western, has been promoted to general agent, with headquarters at Fort Worth, Tex.

A. R. Mulkins, has been appointed commercial agent of the Atlantic Coast Line with headquarters at Philadelphia, and **C. J. Carty** has been appointed commercial agent with headquarters at New York, effective October 1.

E. W. Clapp, whose appointment as assistant freight traffic manager of the Southern Pacific, with headquarters at San Francisco, Cal., was announced in the *Railway Age* of September 17 (page 556), was born at Memphis, Tenn., on February 25, 1874, and was educated in both public and private schools in Memphis and Bell Buckle, Tenn. He entered railroad service on October 4, 1893, and served as a stenographer, and as a clerk, in the superintendent's office of the Southern Pacific at Tucson, Ariz., until 1895. From November, 1895, to July, 1896, he was employed in train service. He became ticket clerk at Lordsburg, New Mexico, in July, 1896, and remained at that position until January, 1897, when he was appointed chief clerk and cashier. From July, 1897, to November, 1905, he served as an agent and assistant trainmaster. In November, 1905, he was appointed traveling freight and passenger agent, with headquarters at San Francisco, Cal., which position he held until August, 1906, when he was promoted to district freight and passenger agent, with headquarters at Reno, Nev. In November, 1909, he was transferred to Fresno, Cal. From August to November, 1910, he was chief clerk in the general freight office at San Francisco. In November, 1910, he left the railroad to become general agent for the Atlantic Steamship Lines. In January, 1911, he was appointed assistant general freight and passenger agent, with headquarters at Tucson, Ariz., also serving at the same time as general freight and passenger agent for the Arizona Eastern, a subsidiary of the Southern Pacific, with the same headquarters. In April, 1915, he was appointed general freight agent of the Southern Pacific, with headquarters at Los Angeles, Cal., where he remained until March, 1919, when he was transferred to San Francisco, which position he was holding at the time of his recent appointment.

E. W. Clapp

L. C. Zimmerman, whose appointment as assistant general freight agent of the Southern Pacific, with headquarters at Los Angeles, Cal., was announced in the *Railway Age* of September 17 (page 556), was born at Williamsport, Pa. He entered railroad service about 26 years ago in a local freight office of the Atchison, Topeka & Santa Fe. Some time later he left this road to become chief rate clerk in the general freight office of the Colorado & Southern, with headquarters at Denver, Colo., on which road he was later promoted to contracting agent and then commercial agent. He entered the service of the Southern Pacific as general agent, with headquarters at Denver, Colo., which position he held until federal control, when the off-line offices were closed. During government control he was with the Southern Pacific in Texas, later being transferred to San Francisco. He left San Francisco to become industrial agent, with headquarters at Los Angeles, and was promoted to district freight agent, with the same headquarters which position he held at the time of his recent promotion.

Mechanical

J. E. Carr has been appointed assistant general road foreman of engines of the United Railways of Havana with headquarters at Cruces, Cuba.

Engineering, Maintenance of Way and Signaling

C. P. Richardson, assistant engineer of the Dakota division of the Chicago, Rock Island & Pacific, has been transferred to the general offices in Chicago, where he will be in charge of special work in the engineering department.

E. F. Kultchar has been appointed district engineer, maintenance of way, of the Illinois district of the Chicago, Burlington & Quincy, with headquarters at Galesburg, Ill. **A. Craine** has been appointed district engineer, maintenance of way, of the Missouri district, with headquarters at St. Louis, Mo., and **D. Cameron** has been appointed district engineer, maintenance of way, of the Iowa district, with headquarters at Burlington, Iowa.

Purchasing and Stores

A. J. Mello has been appointed superintendent of commissary stores of the Southern Pacific, with headquarters at San Francisco, Cal.

J. D. McCarthy, whose appointment as purchasing agent of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., was announced in the *Railway Age* of September 17 (page 556), was born at Chicago, Ill., on August 26, 1881. He entered railroad service in 1889 with the Chicago Great Western, and served successively until 1904, as roadmaster's clerk, chief clerk to the division engineer and division storekeeper. From 1904 to 1906 he served in the accounting department of the Chicago, Rock Island & Pacific. In 1906 Mr. McCarthy entered the service of the Chicago & North Western and through various promotions became assistant purchasing agent of that company. He was serving in this capacity at the time of his recent appointment.

J. D. McCarthy

Obituary

M. Burke, formerly roadmaster of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, Ill., and president of the Roadmasters and Maintenance of Way Association in 1917, died suddenly while at work in the Western Avenue Yard of that road on October 11.

F. F. Busteed, formerly general superintendent of the Canadian Pacific, died suddenly from heart disease at his home in Vancouver, B. C., on October 2. Mr. Busteed was born at Battery Point, Que., in 1858. He entered the service of the Canadian Pacific in 1879, and through various promotions became assistant chief engineer in June, 1904. In 1907 he was promoted to general superintendent of the British Columbia division and, in 1911, was transferred to the Manitoba division. He re-entered the engineering department the same year in charge of double tracking and grade revision from Calgary to the coast, which included the construction of the Connaught tunnel through the Selkirk mountains. Mr. Busteed retired in 1918.